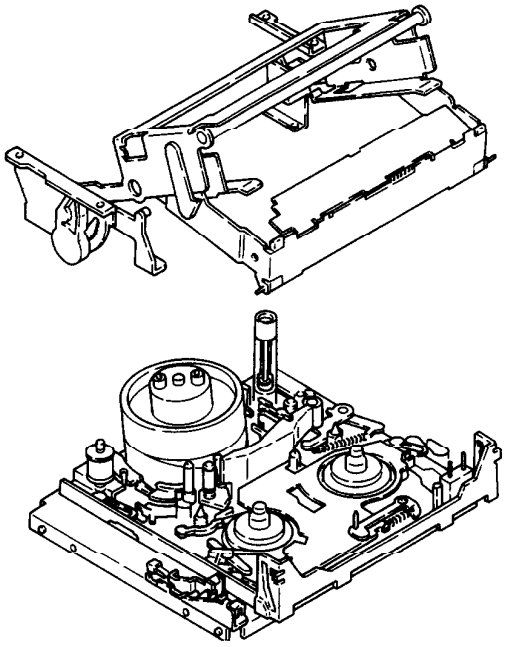
8mm Video MECHANICAL ADJUSTMENT MANUAL

TYPE 3(O'MECHANISM)

Video8

File with the SERVICE MANUAL.

This manual contains the SUPPLEMENT-1.



(Reference)

	Total arc of contact of tape to Drum	REC/PB function	Tape loading system (Cassette loading)	Main models
TYPE 1 (K MECHANISM)	220°	REC/PB	Threading ring	CCD-V8, V8AF, V100 V7, V110
TYPE 2 (O MECHANISM)	180°	REC only	Loading slider S.T (Liner skating)	CCD-M8, M10
TYPE 3 (O'MECHANISM)	180°	REC/PB	Loading slider S.T (Liner skating)	CCD-V30, V50, V90 V3, V4, V5, V9

8 VIDEO CAMERA RECORDER

SONY

MICROFILM

TABLE OF CONTENTS

Section	Title	Page
1.	Preparation for Mechanism Check,Adjustment and Replacement	
1-1.	Cassette Arm Assembly	3
1-2.	LS Cassette Compartment Assembly	4
1-3.	Removing Cassette Tape when in Loading State	5
1-4.	Operation with Cassette and Cassette Arm Assembly and LS Cassette Compartment Removed	6
1-5.	Handling of Mode Selector	7
2.	Periodic Check and Maintenance	
2-1.	Cleaning of Rotary Drum Assembly	9
2-2.	Cleaning of Tape Path	9
2-3.	Cleaning of Drive System	9
2-4.	Periodic Check	10
2-5.	Service Jigs	11
3.	Mechanical Check,Adjustment and Replacement	
3-1.	Reel Lock Lever Assembly	13
3-2.	Pendulume Stopper Plate	14
3-3.	S Reel Table Assembly	15
3-4.	T Reel Table Assembly	16
3-5.	Pinch Arm B Assembly	17
3-6.	Pinch Arm C Assembly	18
3-7.	TG-1 Arm Assembly	19
3-8.	TG-1 Band Assembly	20
3-9.	Soft Brake Assembly	20
3-10.	LS Chassis Assembly	21
3-11.	TG-7 Arm Assembly	22
3-12.	Pinch Arm A Assembly	23
3-13.	M Slider Assembly	24
3-14.	TG-4 Base Assembly,TG-5 Base Assembly	25
3-15.	Loading Slider T Assembly	26
3-16.	Loading Slider S Assembly	27
3-17.	Phase Adjustment	28
3-18.	Gear Tray in Operation Check	29
3-19.	Flexible Board	30
3-20.	Cassette Compartment Lock Assembly	31
3-21.	LM Motor Assembly	32
3-22.	Capstan Motor Assembly	33
3-23.	TG-2	34
3-24.	Drum Unit	35
3-25.	Rotary Upper Drum Replacement	36
3-26.	Reel Table Height Check	38
3-27.	FWD/RVS Torque Check	38
3-28.	Tension Regulator Position Adjustment	39
3-29.	FWD Back Tension Adjustment	40
3-30.	TS Gear Assembly	41
4.	Tape Path Adjustment	
4-1.	Track Shift Jig Connection	42
4-2.	Preparation for Adjustment	43
4-3.	Tracking Coarse Adjustment	44
4-4.	Tracking Fine Adjustment	44
4-5.	No.2 Guide (TG-2) Adjustment	45
4-6.	No.7 Guide (TG-7) Adjustment	45
4-7.	CUE,REV Waveform Check	46
4-8.	Check after Adjustment	46

SUPPLEMENT-1

1. PREPARATION FOR MECHANISM CHECK, ADJUSTMENT AND REPLACEMENT

Refer to Service Manual, "Disassembly" for removal of the cabinet and boards.
Adjustment is done with the mechanism in EJECT state. (Refer to "1-5. Handling of Mode Selector" for information on putting the mechanism into EJECT state.)

1-1. Cassette Arm Assembly (Fig. 1.)

1. Removal

1) Remove screws ❶, ❷, ❸ and ❹ .
2) Remove cassette arm assembly ❺.

2. Mounting

1) Mount cassette arm assembly ❺ on the set so that the two pins ❻ go into the specified locations.
2) Loosely tighten screws ❶ and ❷ and tigten screws ❸ and ❹.
3) Tighten screws ❶ and ❷.

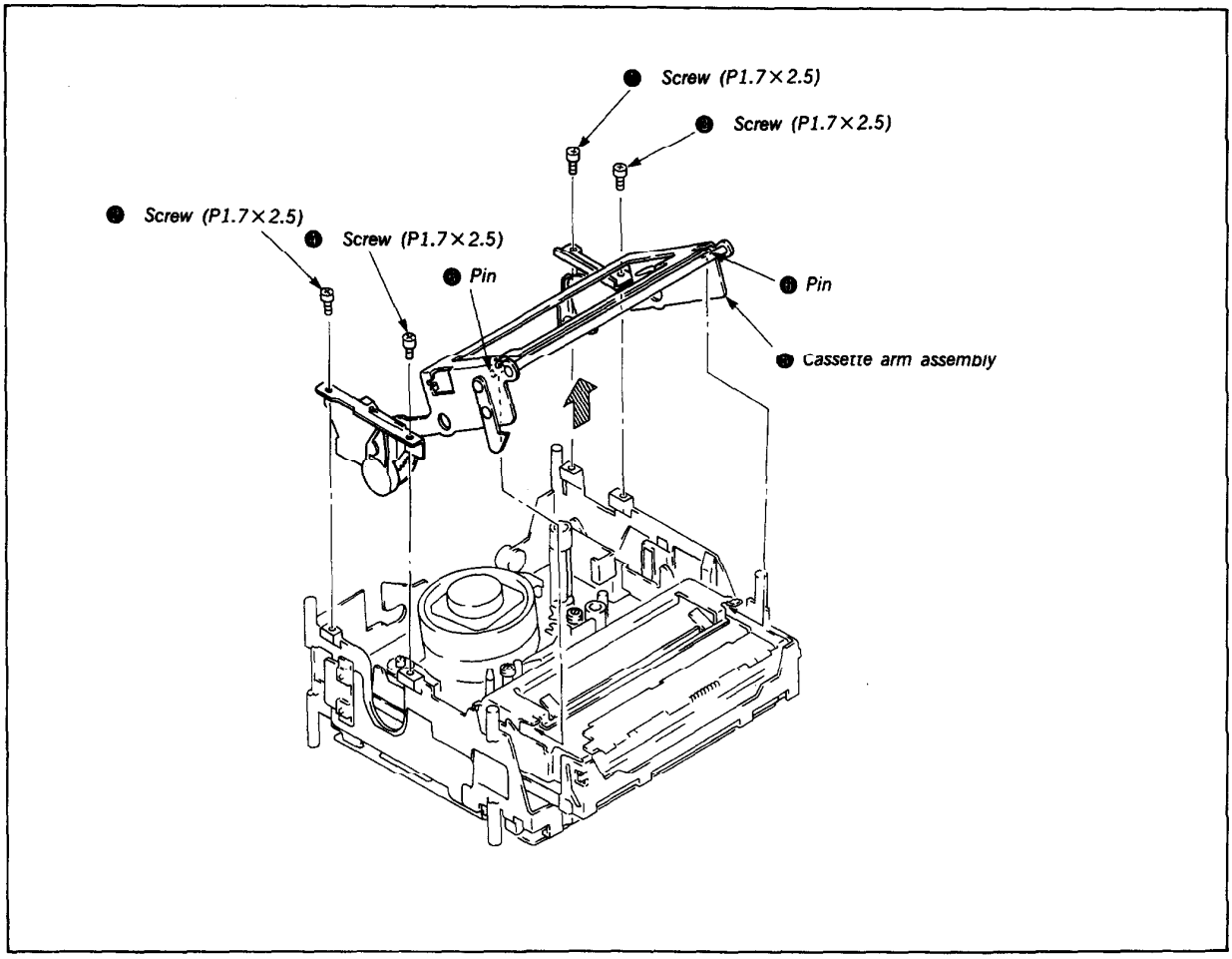


Fig. 1.

1-2. LS Cassette Compartment Assembly (Fig. 2.)

1. Removal

1) Remove screws ❶, ❷, ❸ and ❹.
2) Press LS frame ❻ hole ❽ in the direction of arrow Ⓐ and release pins ❼ and ❾. (Pin (C) ❺ is longer, so release pin (B) ❿ first.)
3) Remove LS cassette compartment assembly ❼.

2. Mounting

1) Mount LS cassette compartment assembly ❼ on the set.
2) Press LS frame ❻ hole ❽ in the direction of arrow Ⓐ and insert the two pins ❺ and ❾. (Insert the longer pin (C) ❺ first.)
3) Loosely tighten screws ❸ and ❹ and then tighten the screws in the order ❶, ❷, ❷ and ❸.

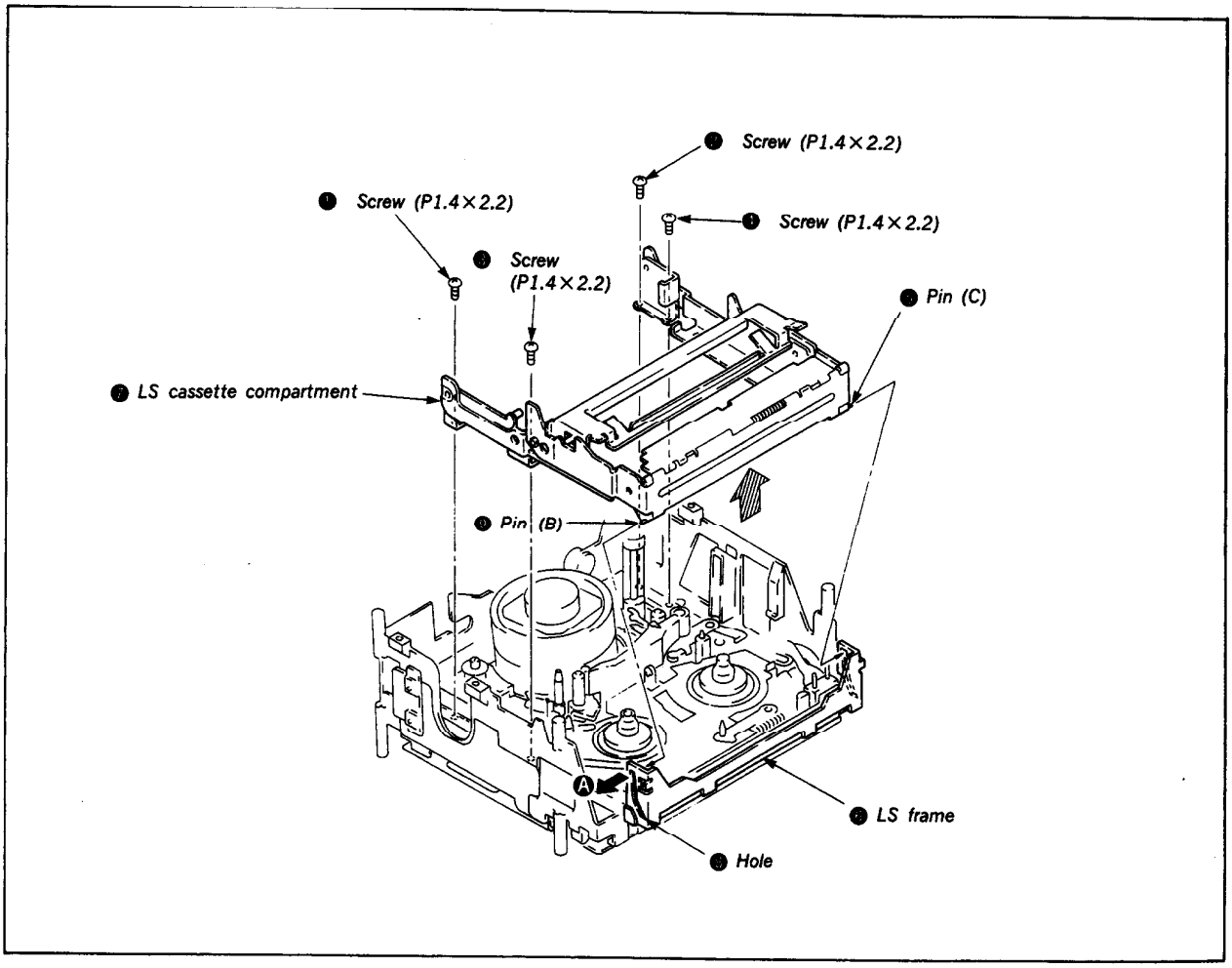


Fig. 2.

1-3. Removing Cassette Tape when in Loading State

1) Open the PC board back of mechanism chassis with reference to the Service Manual.
2) Connect the mode selector, referring to 1-5.
   Note:
   The modes indicated by [ ] are the modes set by pressing the mode selector button.
3) Set for [GUIDE LOAD] mode and move the tape guides from the positions shown in Fig. 4 to those shown in Fig. 5.
4) Rotate the capstan motor rotor ● in the direction of the arrow and take the tape up inside the cassette. (Fig. 3.)
   Note:
   Even in [GUIDE LOAD] mode, if the tape guides are closer to the cassette than the positions showin in Fig. 5, the tape can not be taken up.
5) Check that the tape has been taken up completely, set for [EJECT] mode and remove the cassette.

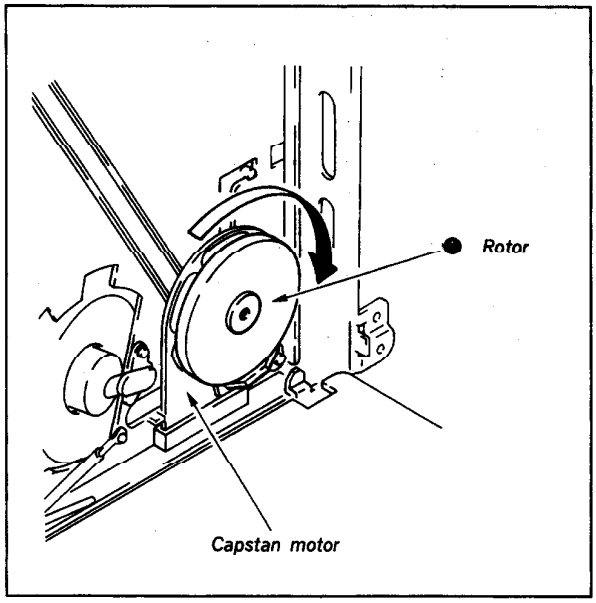


Fig. 3.

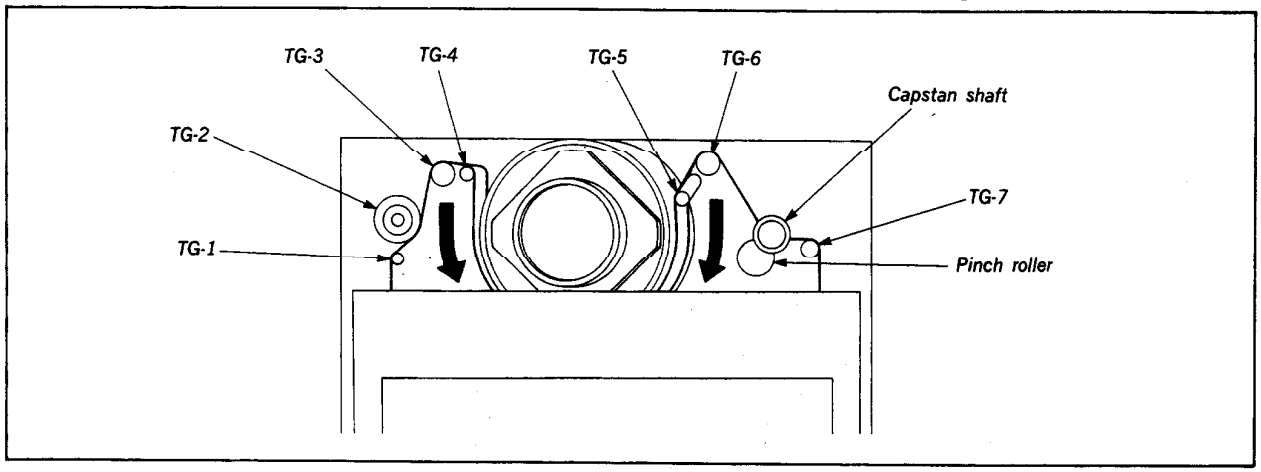


Fig. 4.

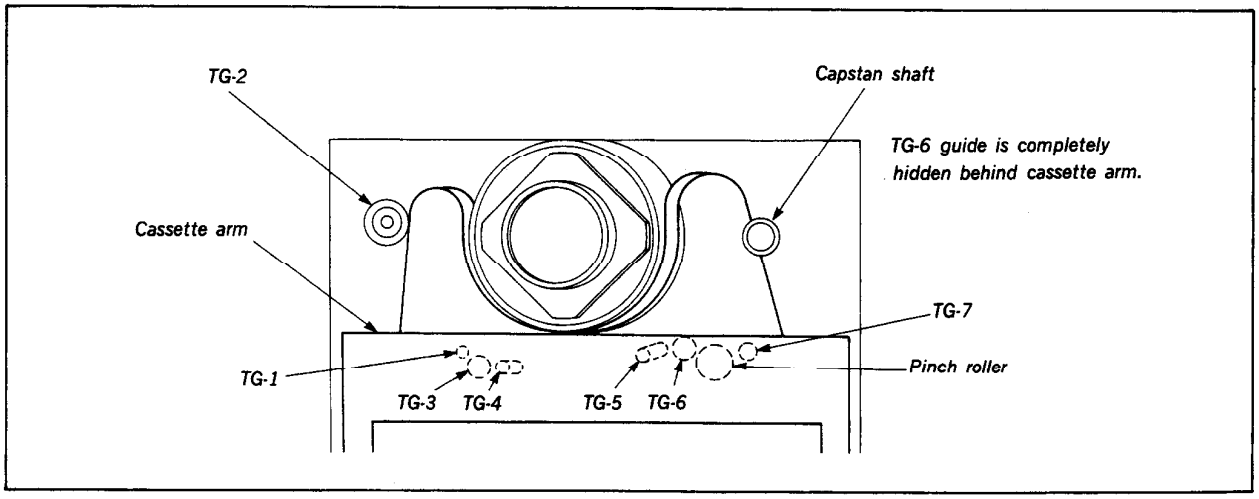


Fig. 5.

1-4. Operation with Cassette and Cassette Arm Assembly and LS Cassette Compartment Removed

1. Putting into Loading State (Fig. 6.)

1) Power should be supplied without cabinet and Camera sections by refering to service manual. (Make mechanism deck operate.)
2) Place cap ● on LED assembly ●.
3) Press push SW ● pin (ON state) and secure with adhesive tape ●.
4) The set will go into loading state when the return prevention arm ● is pressed in the direction of arrow Ⓐ.

2. Putting into REC State

1) After completing 1. above, set power switch to VTR. (or CAMERA)
2) Turn REC SW ON.

3. Putting into EJECT

1) Turn EJECT SW ON.

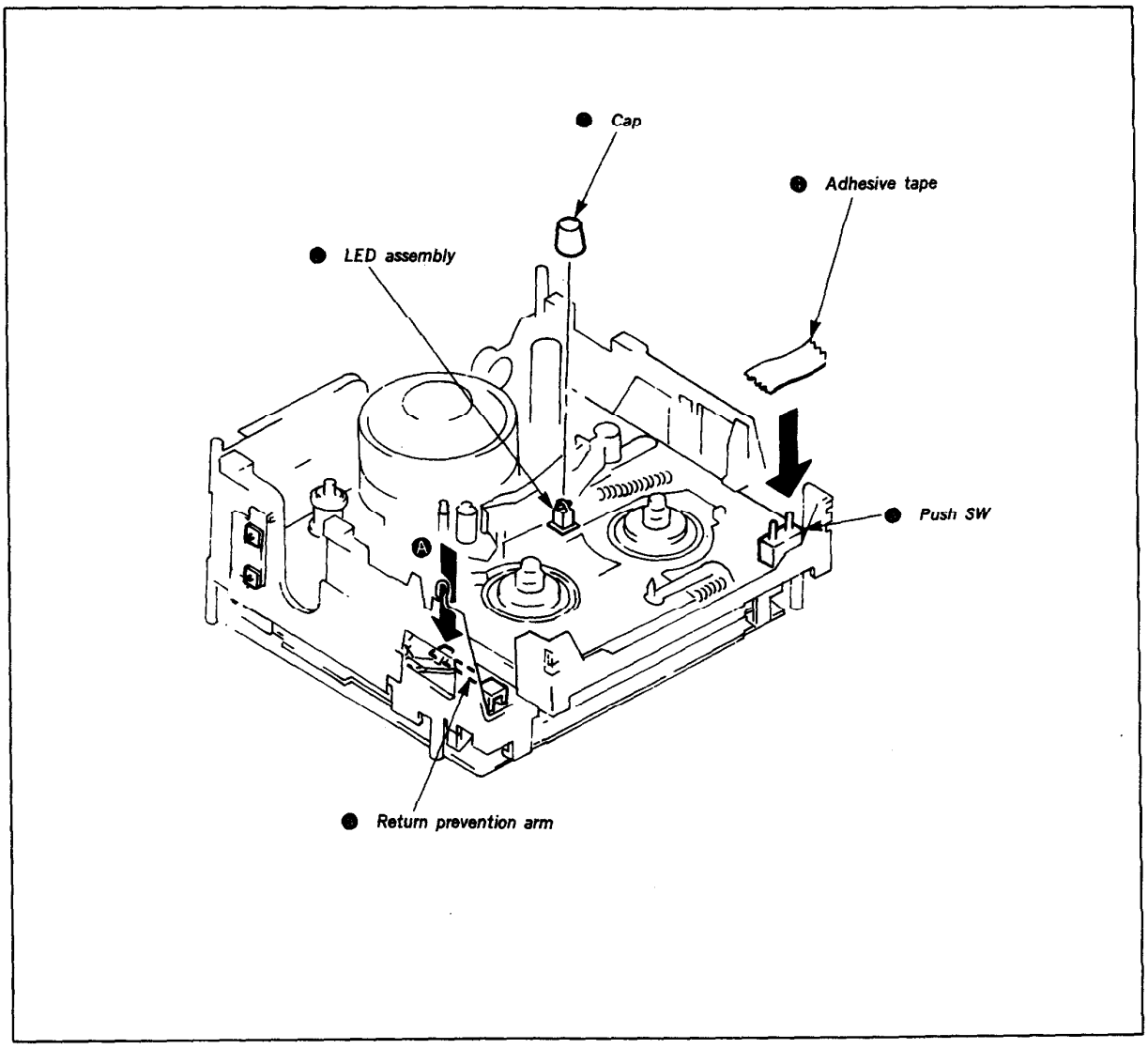


Fig. 6.

1-5. Handling of Mode Selector

- Mount MODE SELECTOR II panel. (Fig. 7)

1. Names of Parts (Fig. 8.)

2. Connection (Fig. 9)

1) Remove flexible board connector with a blade screwdriver or the like.
   Note:
   Be careful not to pull the flexible board when removing. If it is pulled too hard, the pattern may be cut.
2) Plug in MODE SELECTOR II conversion connector.
3) Plug M-SW connector into MODE SELECTOR II conversion connector.

3. Handling

1) Use M mode switching button only.
2) During selection, "BLANK" with light up when no mode is selected.
3) When the right side M mode switching button is pressed continuously, EJECT → USE → GUIDE LOAD → REC → READY will light up in that order.
4) For READY ⇢ EJECT, press the left side switching button for the target mode.

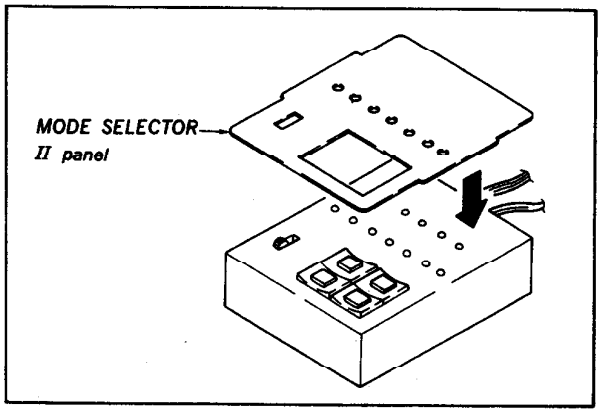


Fig. 7.

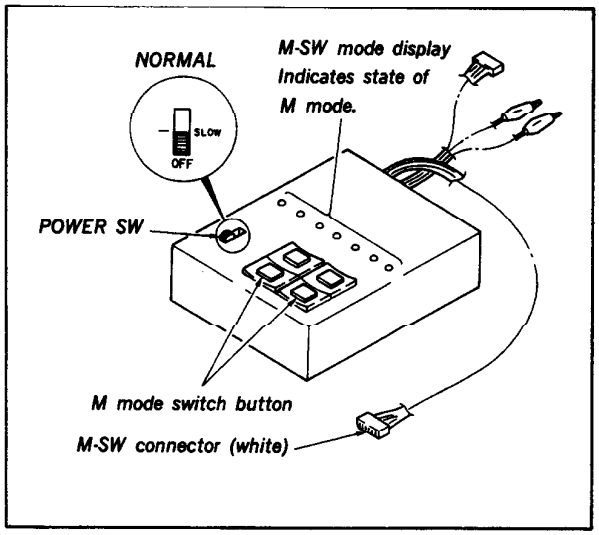


Fig. 8.

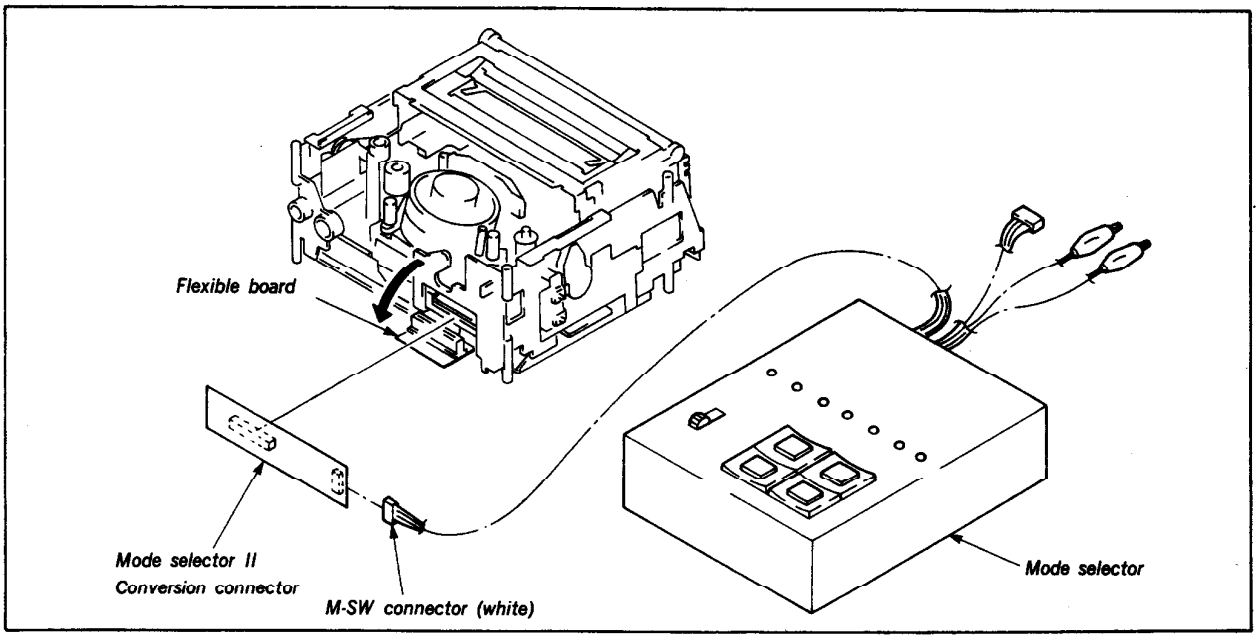
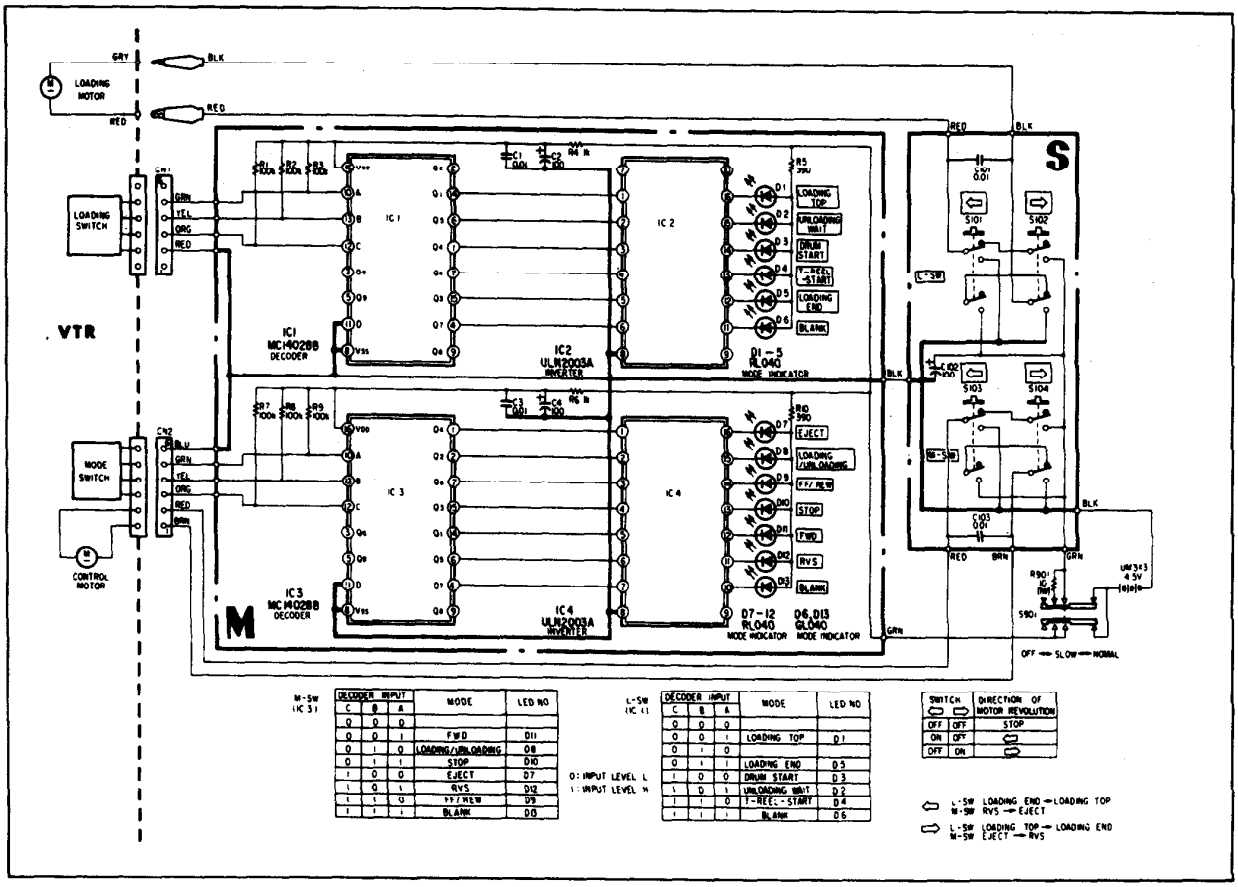


Fig. 9.

4. Mode Selector Schematic Diagram



5. Mode Selector Parts List

Ref. No.	Part No.	Description			
	CAPACITORS				
C1	1-108-579-00	MYLAR	0.01μF	50V	
C2	1-123-333-00	ELECT	100μF	24V	
C3	1-108-579-00	MYLAR	0.01μF	50V	
C4	1-123-333-00	ELECT	100μF	24V	
C101	1-108-579-00	MYLAR	0.01μF	50V	
C102	1-123-333-00	ELECT	100μF	24V	
C103	1-108-579-00	MYLAR	0.01μF	50V	
	DIODE				
D1	8-719-812-31	DIODE	TLR123		
D2	8-719-812-31	DIODE	TLR123		
D3	8-719-812-31	DIODE	TLR123		
D4	8-719-812-31	DIODE	TLR123		
D5	8-719-812-31	DIODE	TLR123		
D6	8-719-812-33	DIODE	TLG123A		
D7	8-719-812-31	DIODE	TLR123		
D8	8-719-812-31	DIODE	TLR123		
D9	8-719-812-31	DIODE	TLR123		
D10	8-719-812-31	DIODE	TLR123		
D11	8-719-812-31	DIODE	TLR123		
D12	8-719-812-31	DIODE	TLR123		
D13	8-719-812-33	DIODE	TLG123A		

Ref. No.	Part No.	Description		
	IC			
IC1	8-759-240-28	IC	TC4028BP	
IC2	8-759-120-03	IC	μPA2003C	
IC3	8-759-240-28	IC	TC4028BP	
IC4	8-759-120-03	IC	μPA2003C	
	RESISTORS			
R1	1-247-179-00	CARBON	100K	1/4W
R2	1-247-179-00	CARBON	100K	1/4W
R3	1-247-179-00	CARBON	100K	1/4W
R4	1-247-131-00	CARBON	1K	1/4W
R5	1-247-121-00	CARBON	390	1/4W
R6	1-247-131-00	CARBON	1K	1/4W
R7	1-247-179-00	CARBON	100K	1/4W
R8	1-247-179-00	CARBON	100K	1/4W
R9	1-247-179-00	CARBON	100K	1/4W
R10	1-247-121-00	CARBON	390	1/4W
R901	1-214-594-00	METAL	10	1W

2. PERIODIC CHECK AND MAINTENANCE

In order to give full play to set performance and function, perform the following maintenance and period checks of the equipment and tape. In addition, regardless of the length of use, service the set as follows after repairing.

2-1. Cleaning of Rotary Drum Assembly

1) Lightly press a chamois cloth (Ref. No. J-2) soaked in cleaning fluid (Ref. No. J-1) against the rotary drum assembly and clean by slowing turning the rotary upper drum assembly counterclockwise by hand.
Note:
Do not turn the motor by turning the power on or rotate clockwise. Also, the head tip will be damaged if the chamois cloth is moved vertically against it, so make sure to follow the instructions given above for cleaning the drum.

2-2. Cleaning of Tape Path (Fig. 10)

1) In EJECT state, clean the tape transport system (TG-1, 2, 3, 4, 5, 6, 7, pinch roller, capstan shaft) with a chamois cloth soaked in cleaning fluid.
Note:
Be careful that grease and oil from the linking mechanism do not get on the cloth.

2-3. Cleaning of Drive System

1) Clean the drive system (relay belt, reel table surfaces) with a cloth soaked in cleaning fluid.

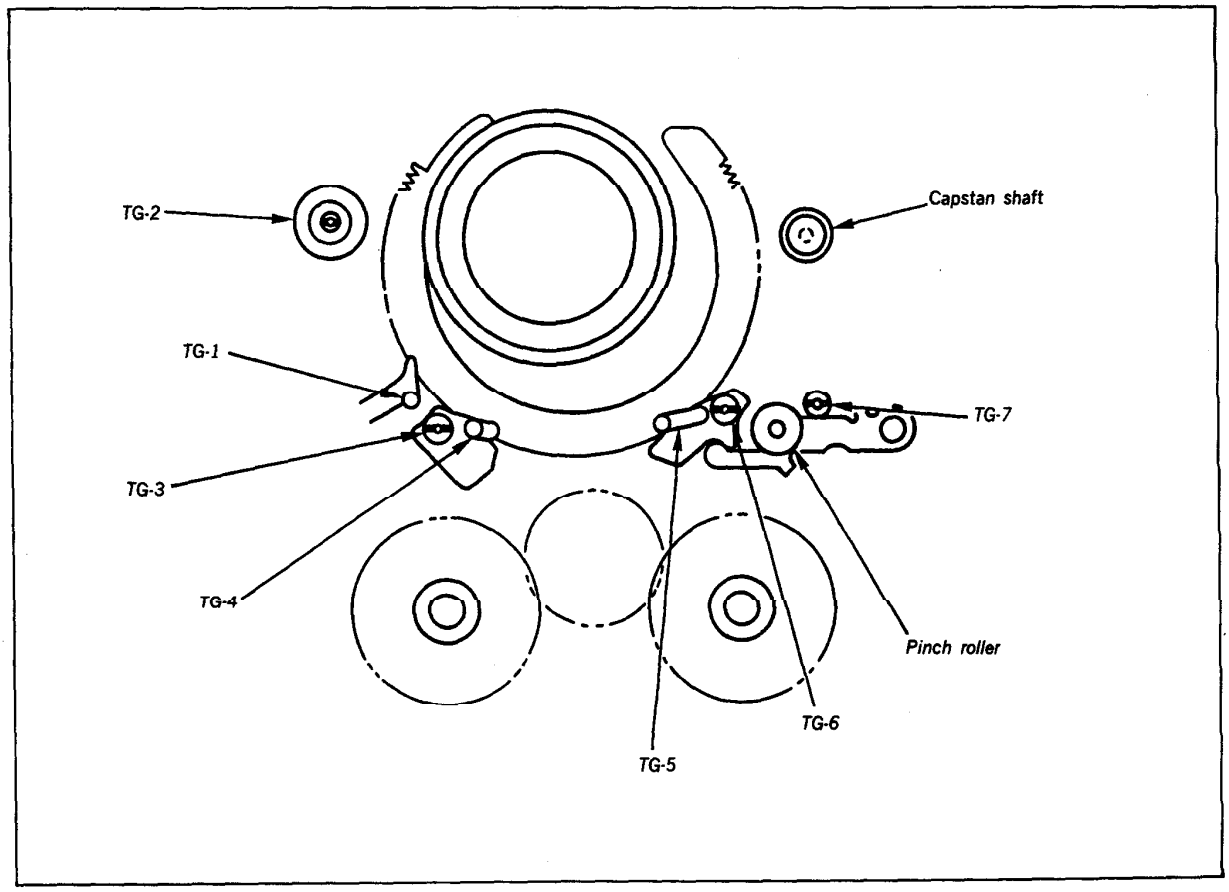


Fig. 10.

2-4. Periodic Check

Location of maintenance & check		Hours of use (H)										Remarks
		500	1000	1500	200	2500	3000	3500	4000	4500	5000	
	Cleaning of tape path surfaces	○	○	○	○	○	○	○	○	○	○	Be careful of oil
	Cleaning and degausing of rotary drum assembly	○	○	○	○	○	○	○	○	○	○	Be careful of oil
Drive system	Relay belt	—	☆	—	☆	—	☆	—	☆	—	☆	3-695-637-01
	Capstan shaft	—	◎	—	◎	—	◎	—	◎	—	◎	Be caretul not to get oil on the tape path surfaces.
	Relay pulley shaft	—	◎	—	◎	—	◎	—	◎	—	◎	
	Loading motor	—	☆	—	☆	—	☆	—	☆	—	☆	8-835-222-01
Performance check	Abnormal noise	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	Back tension measurement	—	☆	—	☆	—	☆	—	☆	—	☆	
	Brake system	—	☆	—	☆	—	☆	—	☆	—	☆	
	FWD / RVS torque measurement	—	☆	—	☆	—	☆	—	☆	—	☆	

○ Cleaning ◎ Oil ☆ Check

Note:

When performing an overhaul, refer to the above items when replacing parts.

Note: Oil

Be sure to use the specified oil. (The wrong viscosity may cause problems)

Oil: Part No. 7-661-088-61

(Mitsubishi Diamond Oil Hydrofluid NT-68)

Make sure that there are no impurities in the oil which is used for lubrication of bearings. (Friction or burning of the bearings may be caused if dirty oil is used.)

One drop of oil is the amount which sticks to the tip of a rod which is 2mm in diameter, as shown in Fig. 11.

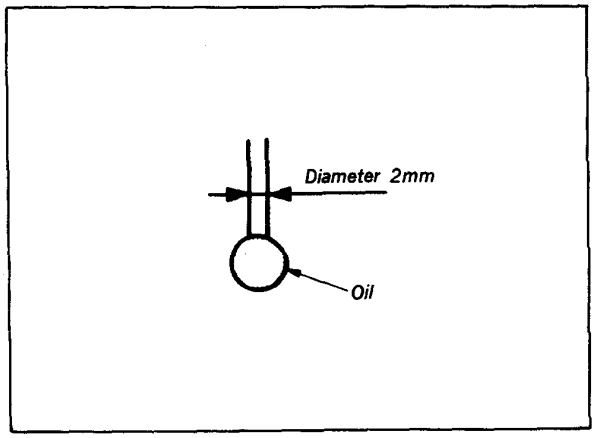


Fig. 11

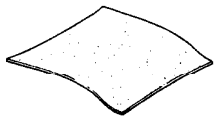
2-5. Service Jigs

Ref. No.	Name	Part No.	Fixture No.	Use
J-1	Cleaning fluid	Y-2031-001-0	———	
J-2	Chamois cloth	2-034-697-00	———	
J-3	Head degausser	Commercially available		
J-4	Small adjustment mirror Spare mirror	J-6080-029-A J-6080-030-1	SL-5052	Tape path
J-5	Alignment tape NTSC (WR5-1N) PAL (WR5-1C)	8-967-995-01 8-967-995-06		Tape path
J-6	Dial tension gauge	J-6080-827-A		Torque measurements
J-7	Tension measurement reel	J-6080-831-A		with ϕ30 tape
J-8	Tension measurement reel	J-6080-832-A		with ϕ16 string
J-9	FWD, RVS winding torque cassette	J-6080-824-A	GD-2086	
J-10	Rotary drum jig	(packed with repair rotary upper drum)		
J-11	Tape path screwdriver	J-6080-811-A		Tape guide adjustment
J-12	Mode selector II panel	J-6080-844-A		
J-13	Mode selector	J-6080-825-A		For all models
J-14	Mode selector II conversion connector	J-6080-845-A		
J-15	Tape end detection filter	J-6080-848-A		Tape end detection adjustment

Other equipment used: Oscilloscope
Analog tester (20kΩ)

J-1

J-2



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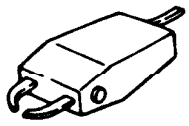

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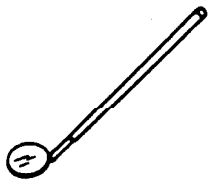

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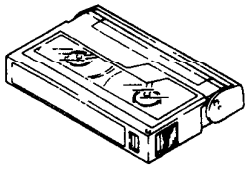

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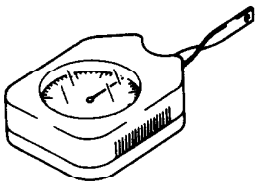

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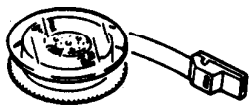

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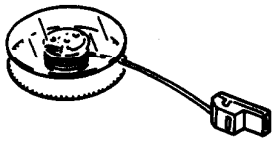

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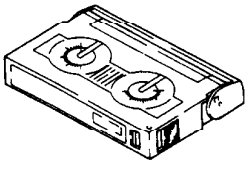
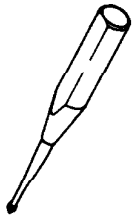


J-10 (Packed with the rotary upper drum for repairs and replacement)

J-11



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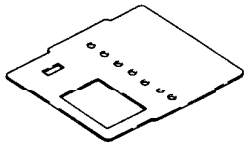

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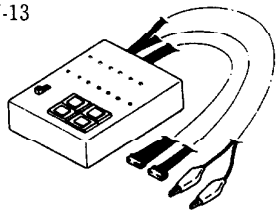

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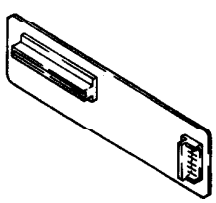
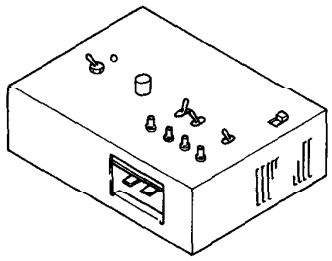


J-15

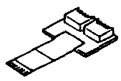
Ref. No.	Name	Part No.	Fixture	Use
J-16*	Track shift jig	J-6080-891-A	———	Tape path
J-17	Extension cable U	J-6080-901-A	———	Connection cable for track shift and monitor jig
J-18	CTL connection cord	J-6080-891-1	———	
J-19	RF/SWP connection cord	J-6080-891-2	———	

* The track shift & monitor Jig (NTSC J-6080-843-A / PAL J-6080-851-A) can be used instead of the track shift jig (J-6080-891-A).

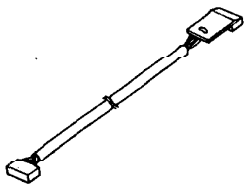
J-16



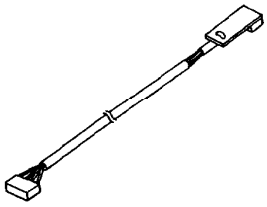
J-17



J-18



J-19



3. MECHANICAL CHECK, ADJUSTMENT AND REPLACEMENT

Note 1:

Use mode selector (Ref. No. J-13) when performing these mechanical checks, adjustments and replacements.

Note 2:

The modes indicated by [ ] are those set by pressing the mode selector buttons.

3-1. Reel Lock Lever Assembly (Fig. 12)

1. Removal

1) Refer to 1-1. and 1-2. and remove the cassette arm assembly and LS cassette compartment assembly.
2) Remove tension coil spring ❷ from notch ❹.
3) Remove stopper washer ❸ and remove reel lock lever assembly ❶ from the shaft ❺.

2. Mounting

1) Mount reel lock lever assembly ❶ on shaft ❺ and secure with stopper washer ❸.
2) Hook tension coil spring ❷ into notch ❹.
3) Refer to 1-1. and 1-2. and mount the cassette arm assembly and LS cassette compartment assembly.

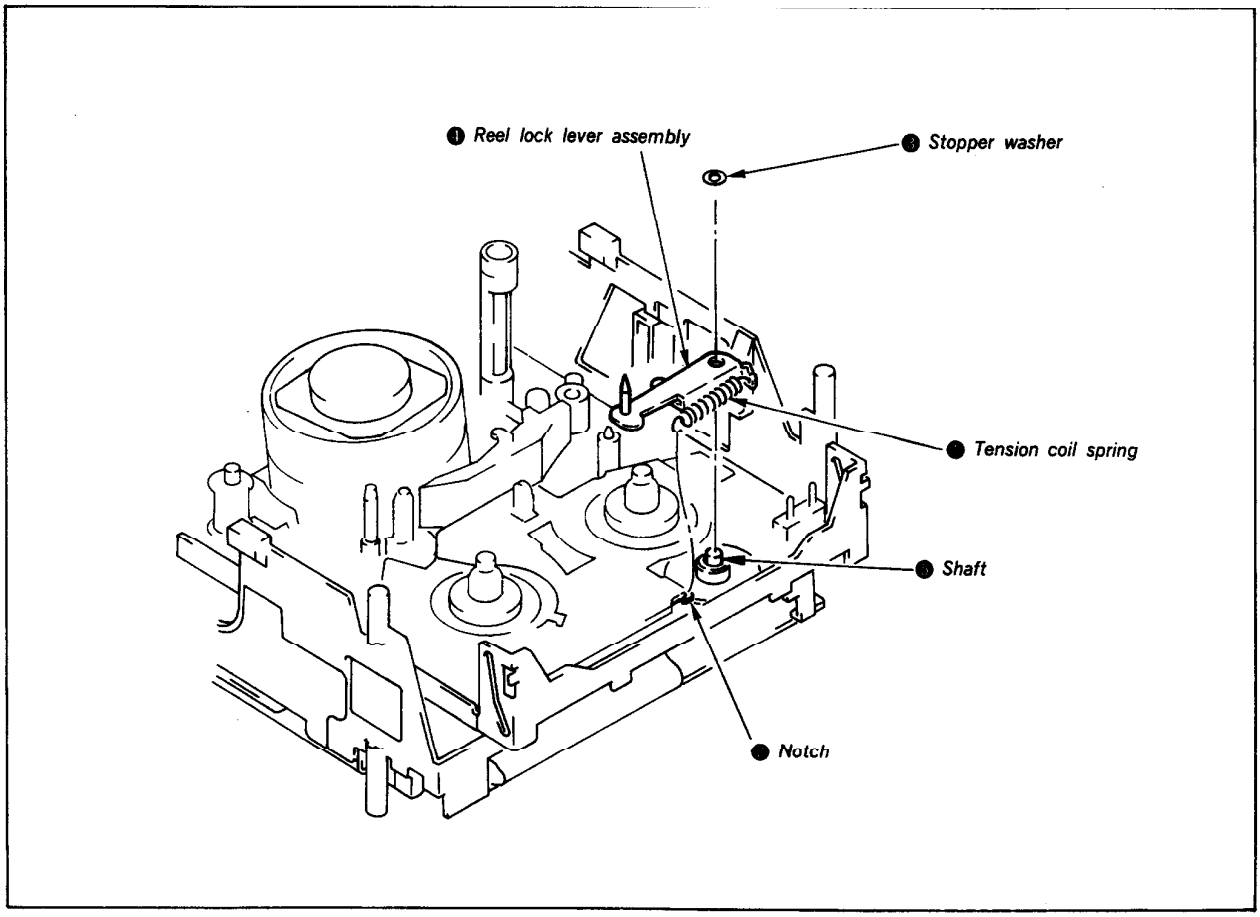


Fig. 12.

3-2. Pendulume Stopper Plate (Fig. 13)

1. Removal

1) Refer to 1-1. and 1-2. and remove the cassette arm assembly and LS cassette compartment assembly.
2) Refer to 3-1. and remove the reel lock lever assembly.
3) Press LED assembly ❶ claw ❷ in the direction of arrow Ⓐ and lift LED assembly ❶ up to remove. Remove claw ❷.
4) Remove screws ❸ and ❹.
5) Remove pendulum stopper plate ❻ from the two claws ❺.

Note:

When removing and mounting, be careful not to press claw ❷ too hard, or it may break or bend.

2. Mounting

1) Set to [READY] mode.
2) Place LED assembly ❶ so that it is on top of pendulum stopper plate ❻ and insert into the two claws ❺ and dowels ❾.
3) Tighten screws ❸ and ❹ in that order.
4) Hook LED assembly ❶ claw ❷ and press in the direction of arrow Ⓑ.
5) Set to [EJECT] mode.
6) Refer to 3-1. and mount the reel lock lever assembly.
7) Refer to 1-1. and 1-2. and mount the cassette arm assembly and LS cassette compartment assembly.

Note 1:

When mounting pendulum stopper plate ❻, be careful that the TG-1 band assembly ❽ does not get caught.

Note 2:

The band will be loose except for [READY] mode.

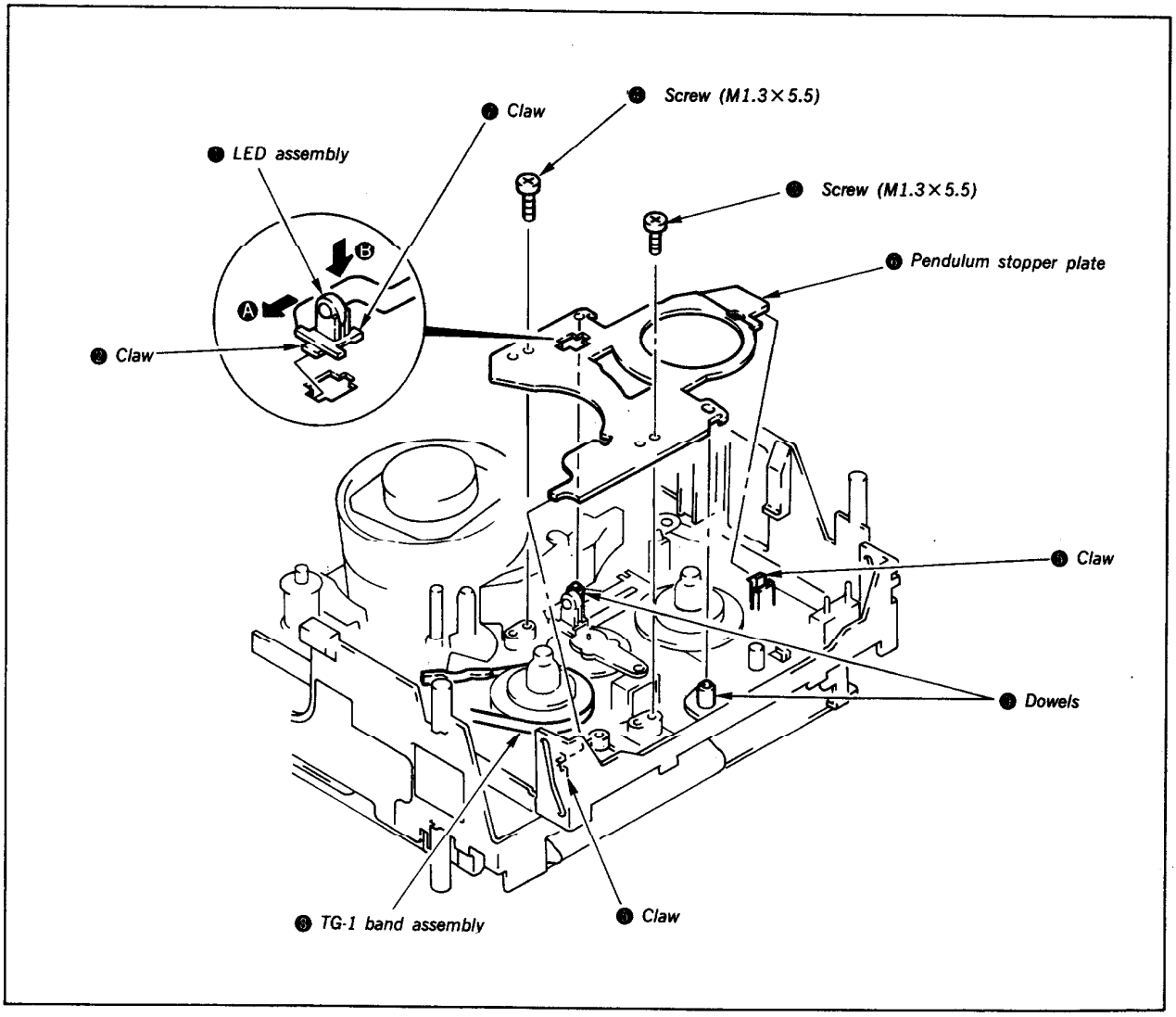


Fig. 13.

3-3. S Reel Table Assembly (Fig. 14)

1. Removal

1) Refer to 1-1. and 1-2. and remove the cassette arm assembly and LS cassette compartment assembly.
2) Refer to 3-1. and remove the reel lock lever assembly.
3) Refer to 3-2. and remove the pendulum stopper plate.
4) Remove screw ❷ and remove one side of TG-1 band assembly ❸.
5) Move soft brake ❹ in the direction of arrow Ⓐ.
6) Remove S reel table assembly ❶.

Note:

Hold the portion of the reel claw marked * to remove S reel table assembly ❶. (Do the same when mounting.)

2. Mounting

1) As shown in Fig. A, apply more than ⅛ but less than ½ drop of oil to the section of shaft ❺ indicated by the arrow.
2) Move soft brake ❹ in the direction of arrow Ⓐ.
3) Mount S reel table assembly ❶ on shaft ❺.
4) Mount TG-1 band assembly ❸ with screw ❷.
5) Refer to 3-2. and mount the pendulum stopper plate.
6) Refer to 3-1. and mount the reel lock lever assembly.
7) Refer to 1-1. and 1-2. and mount the cassette arm assembly and LS cassette compartment assembly.

Note:

Check reel tabel height by referring to 3-26.

Perform tension regulator position adjustment by referring to 3-28.

Perform FWD back tension adjustment by referring to 3-29.

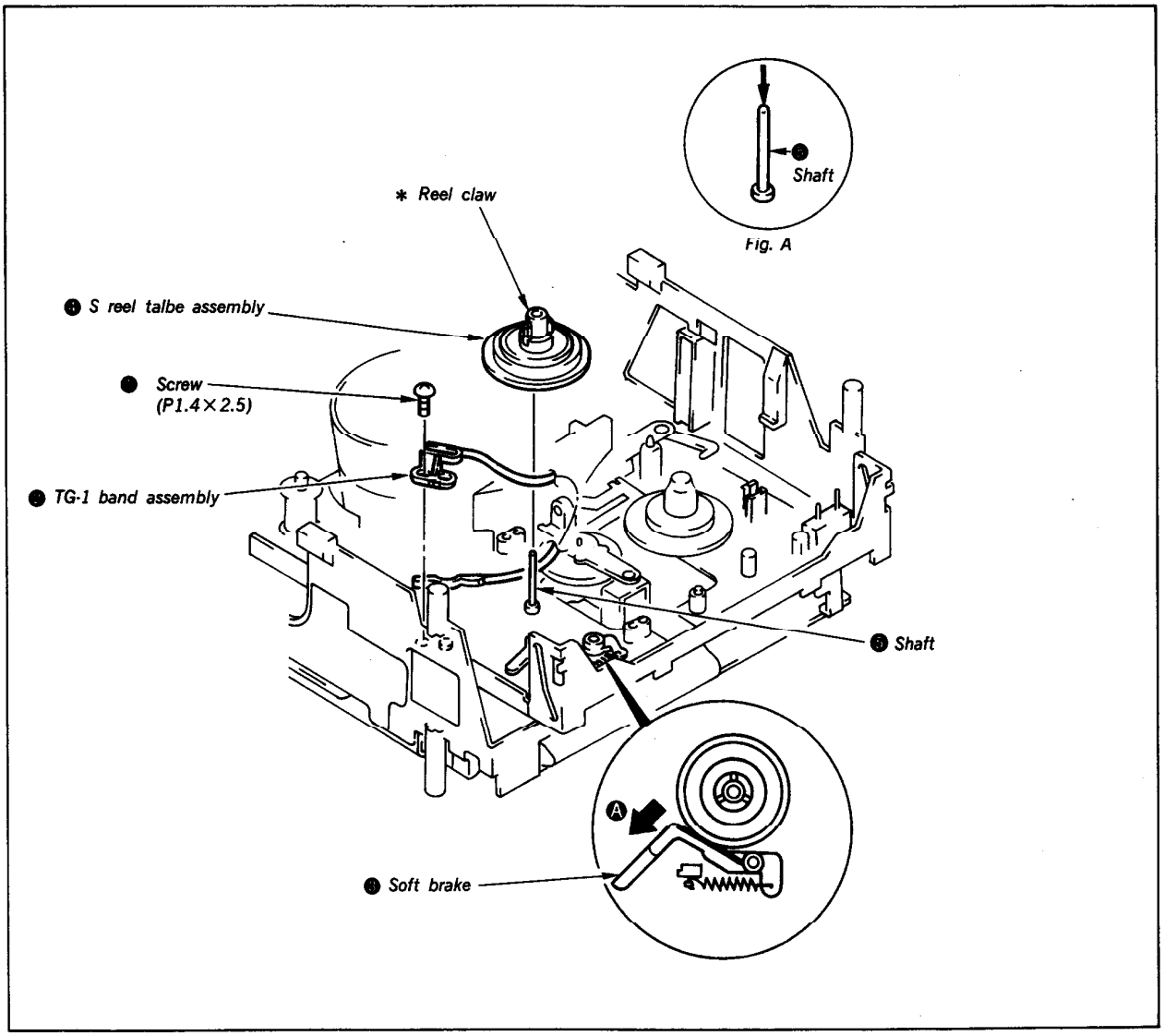


Fig. 14.

3-4. T Reel Table Assembly (Fig. 15)

1. Removal

1) Refer to 1-1. and 1-2. and remove the cassette arm assembly and LS cassette compartment assembly.
2) Refer to 3-1. and remove the reel lock lever assembly.
3) Refer to 3-2. and remove the pendulum stopper plate.
4) Remove T reel table assembly ❶.

Note:

Hold the portion of the reel claw marked * to remove T reel table assembly ❶. (Do the same when mounting.)

2. Mounting

1) As shown in Fig. A, apply more than 1/6 but less than 1/2 drop of oil to the section of shaft ❷ indicated by the arrow.
2) Mount T reel table assembly ❶ on shaft ❷.
3) Refer to 3-2. and mount the pendulum stopper plate.
4) Refer to 3-1. and mount the reel lock lever assembly.
5) Refer to 1-1. and 1-2. and mount the cassette arm assembly and LS cassette compartment assembly.

Note:

Check reel table height by referring to 3-26.

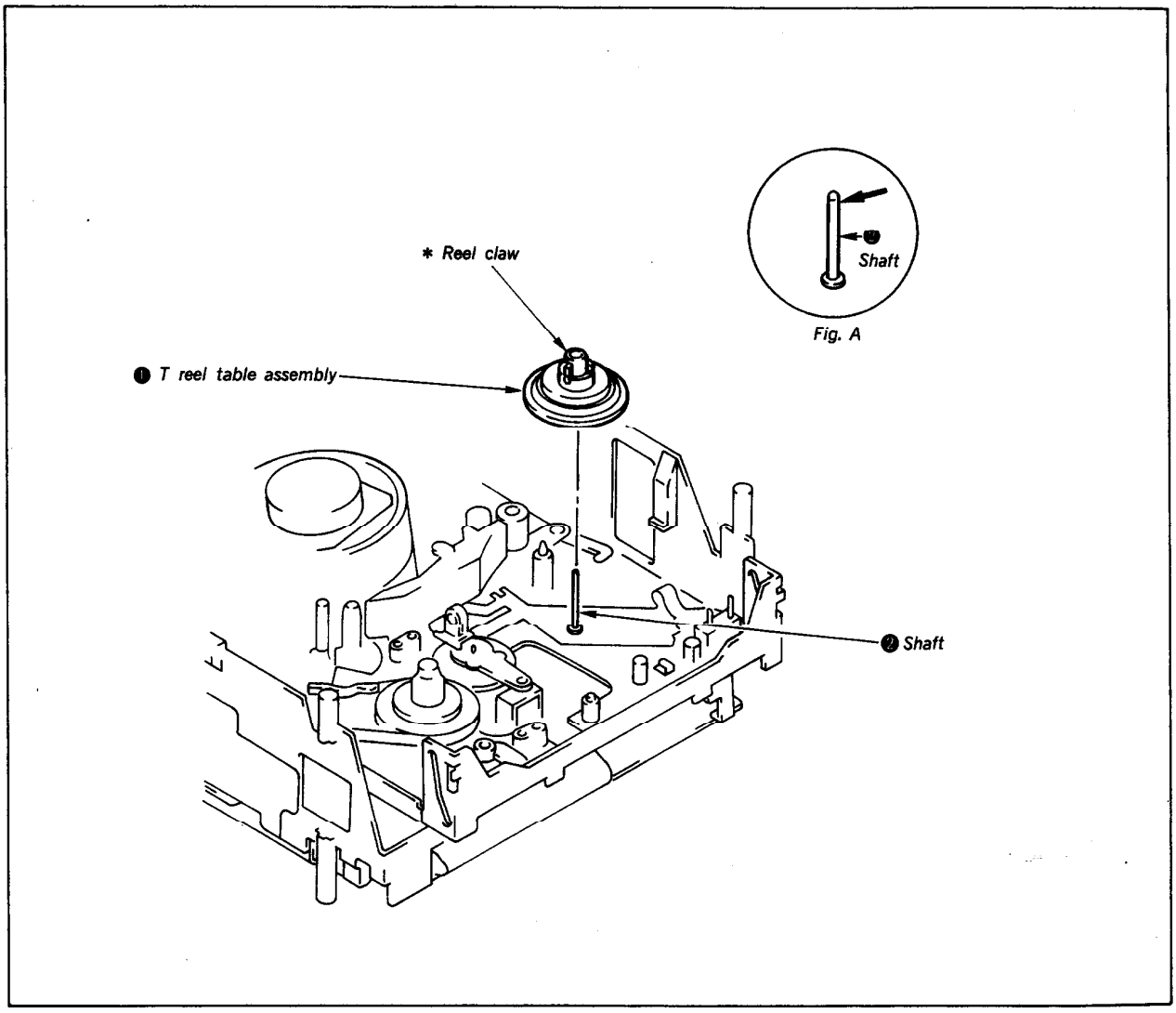


Fig. 15.

3-5. Pinch Arm B Assembly (Fig. 16)

1. Removal

1) Refer to 1-1. and 1-2. and remove the cassette arm assembly and LS cassette compartment assembly.
2) Refer to 3-1. and remove the reel lock lever assembly.
3) Refer to 3-2. and remove the pendulum stopper plate.
4) Refer to 3-4. and remove the T reel table assembly.
5) Remove tension coil spring ❹ from claw ❷.
6) Remove stopper washer ❸ and pinch arm B assembly ❶.

2. Mounting

1) As shown in Fig. A, apply molten grease to the section of pinch arm B assembly ❶ indicated by the arrow.
2) As shown in Fig. B, apply more than ⅓ but less than ½ drop of oil to the section of shaft ❺ indicated by the arrow.
3) Mount pinch arm B assembly ❶ on shaft ❺ so that the pin goes into hole ❻ and pinch arm A ❼ as illustrated in Fig. C.
4) Mount stopper washer ❸.
5) Hook tension coil spring ❹ on claw ❷.
6) Refer to 3-4. and mount the T reel table assembly.
7) Refer to 3-2. and mount the pendulum stopper plate.
8) Refer to 3-1. and mount the reel lock lever assembly.
9) Refer to 1-1. and 1-2. mount the cassette arm assembly and LS cassette compartment assembly.

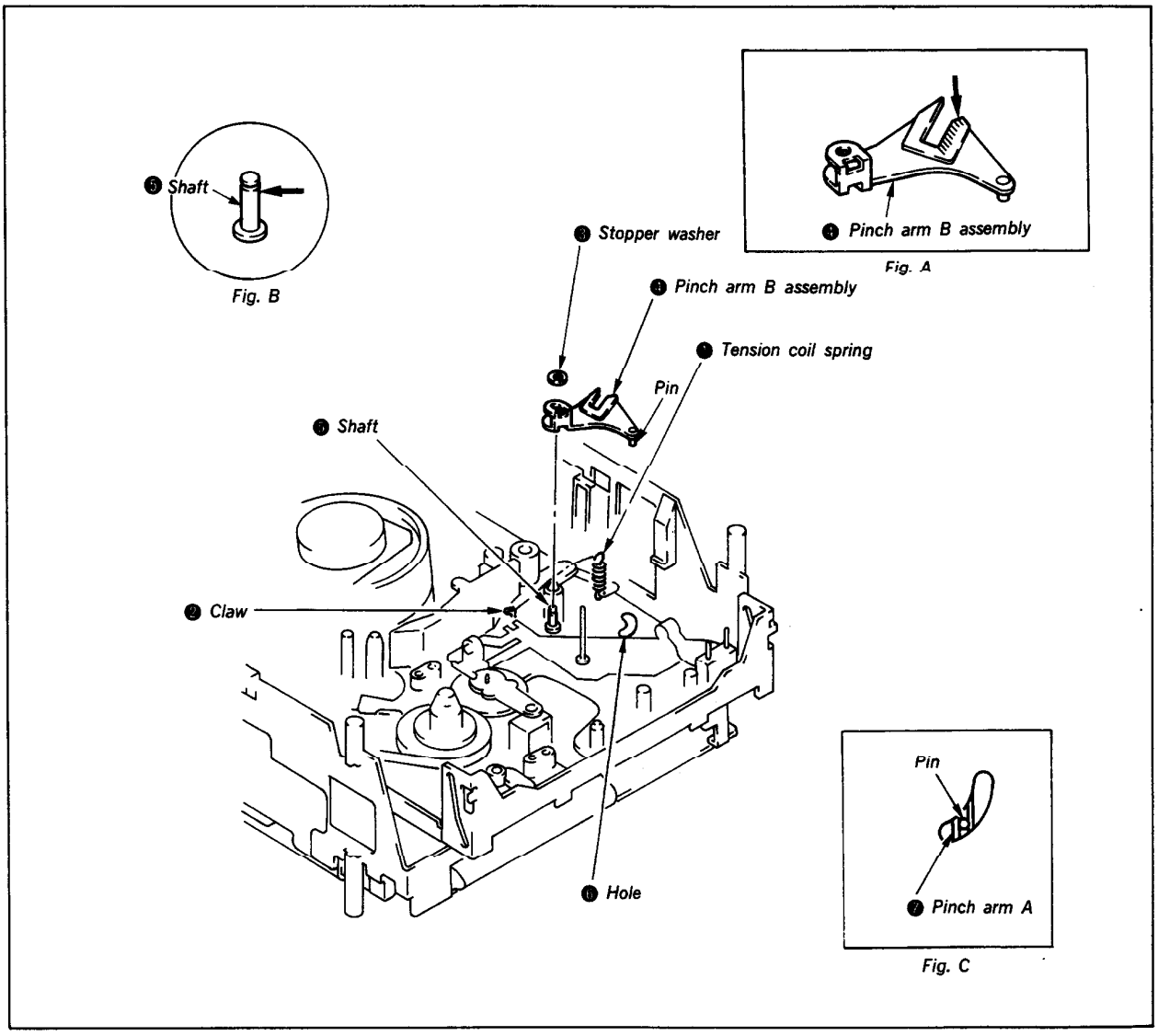


Fig. 16.

3-6. Pinch Arm C Assembly (Fig. 17)

1. Removal

1) Refer to 1-1. and 1-2. and remove the cassette arm assembly and LS cassette compartment assembly.
2) Refer to 3-1. and remove the reel lock lever assembly.
3) Refer to 3-2. and remove the pendulum stopper plate.
4) Remove tension coil spring ❾ from claw ❷.
5) Remove stopper washer ❸ and pinch arm C assembly ❹ and pinch lever assembly ❺.
6) Remove tension coil spring ❻ and disassembly pinch arm C assembly ❹ and pinch lever assembly ❺.

Note:

Be careful not to touch the roller, marked ✱.

2. Mounting

1) As shown in Fig. A, apply more than ⅓ but less than ½ drop of oil to the section of shaft ❼ indicated by the arrow.
2) Mount pinch lever assembly ❺ on pinch arm C assembly ❹, being careful not to touch the roller, and hook tension coil spring ❻.
3) Mount pinch arm C assembly ❹ and pinch lever assembly ❺ on shaft ❼.
4) Mount stopper washer ❸.
5) Hook tension coil spring ❾ on claw ❷.
6) Refer to 3-2. and mount the pendulum stopper plate.
7) Refer to 3-1. and mount the reel lock lever assembly.
8) Refer to 1-1. and 1-2. and mount the cassette arm assembly and LS cassette compartment assembly.

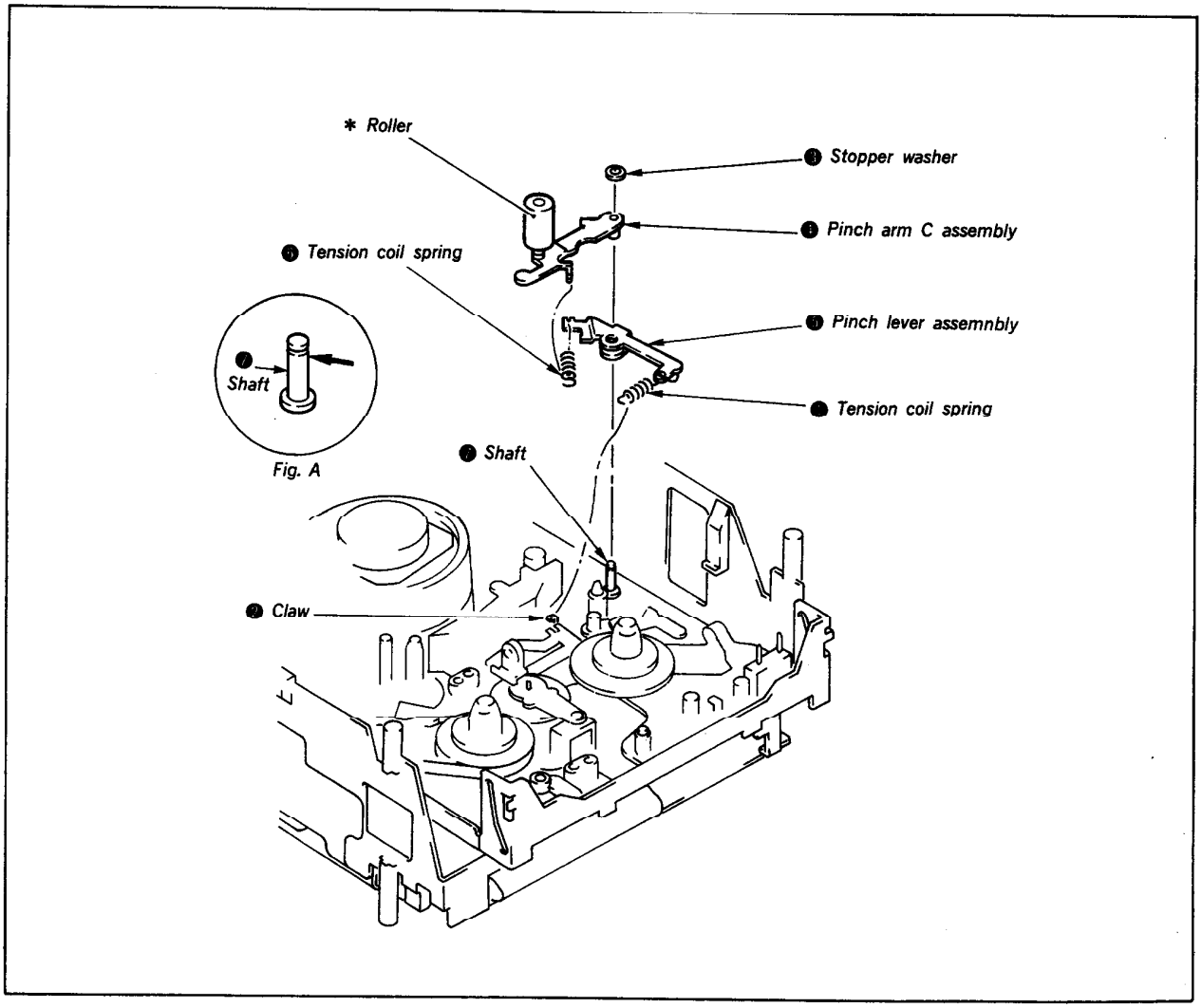


Fig. 17.

3-7. TG-1 Arm Assembly (Fig. 18.)

1. Removal

1) Refer to 1-1. and 1-2. and remove the cassette arm assembly and LS cassette compartment assembly.
2) Refer to 3-1. and remove the reel lock lever assembly.
3) Refer to 3-2. and remove the pendulum stopper plate.
4) Remove stopper washer ❶ and screw ❷.
5) Remove tension coil spring ❸ and TG-1 arm assembly ❹.

Note:

Be careful not to touch the shoe, marked * and the guide, also marked *. (Fig. 19.)

2. Mounting

1) As shown in Fig. A, apply more than ⅛ but less than ¼ drop of oil to the section of shaft ❺ indicated by the arrow.
2) Mount TG-1 arm assembly ❶ on shaft ❺, being careful not to touch the guide.
3) Wind TG-1 band assembly ❼ around the outer circumference of S reel table assembly ❽ and mount with screw ❷ after lining up to the dowel.
4) Mount stopper washer ❶.
5) Hook tension coil spring ❸ as shown in Fig.B.
6) Refer to 3-2. and mount the pendulum stopper plate.
7) Refer to 3-1. and mount the reel lock lever assembly.
8) Refer to 1-1. and 1-2. and mount the cassette arm assembly and LS cassette compartment assembly.

Note 1:

Be careful that the TG-1 band assmbly ❼ is not bent.

Note 2:

Perform tension regulator position adjustment, referring to 3-28.

Note 3:

Perform FWD back tension adjustment, referring to3-29.

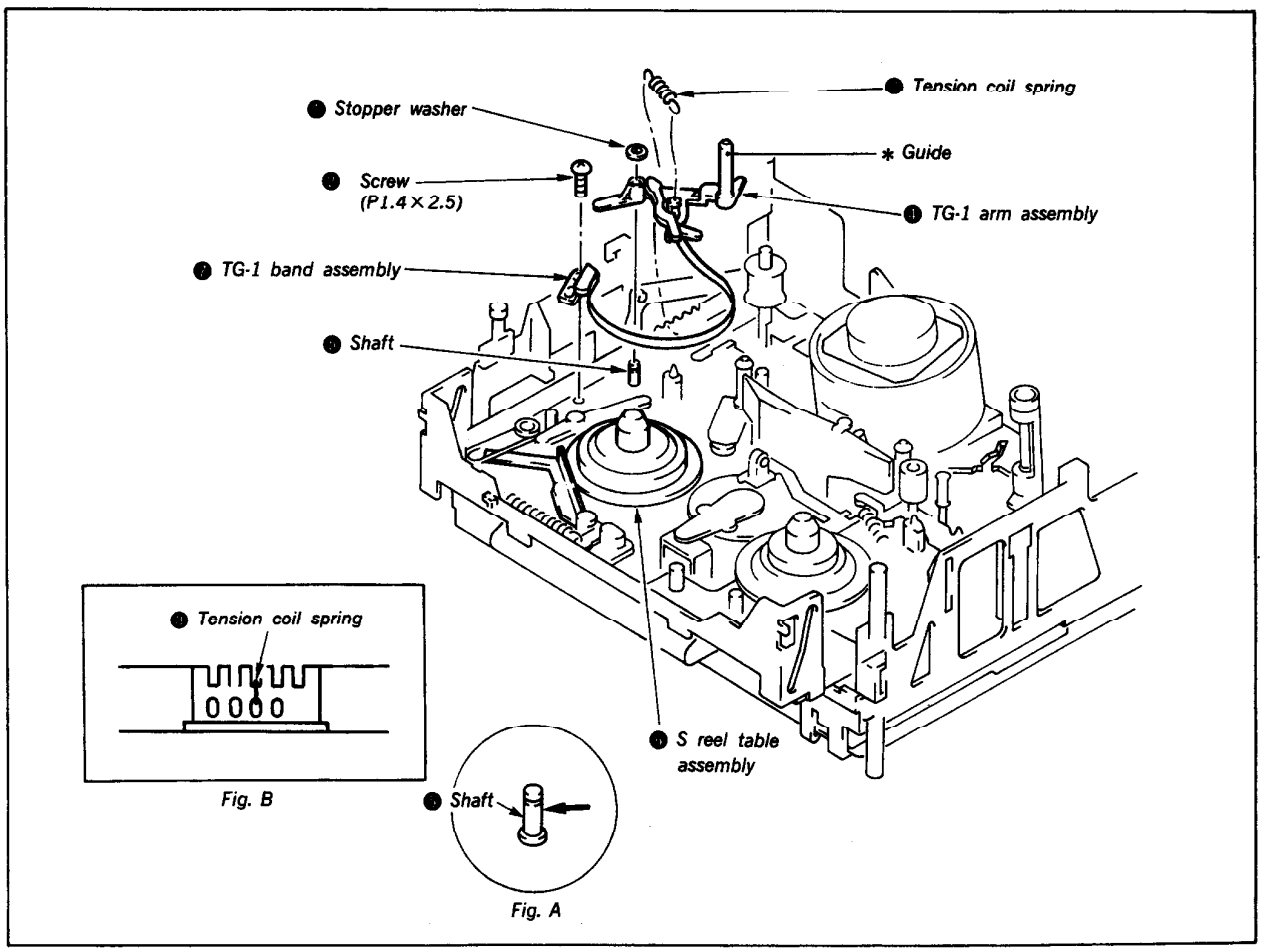


Fig. 18.

3-8. TG-1 Band Assembly (Fig. 19.)

1. Removal

1) Refer to 3-7. and remove the TG-1 arm assembly ❸.
2) Remove TG-1 band assembly ❶ claw ❷ from TG-1 arm assembly ❸ hole.

2. Mounting

1) Insert TG-1 band assembly ❶ claw ❷ in TG-1 arm assembly ❸ hole.
2) Confirm that TG-1 band assembly ❶ rotates smoothly around TG-1 arm assembly ❸ hole.
3) Refer to 3-7. and mount TG-1 arm assembly ❸.

Note 1:

Be careful that the TG-1 band assembly ❶ is not bent.

Note 2:

Be careful not to touch the shoe, marked * , and the guide, also marked *.

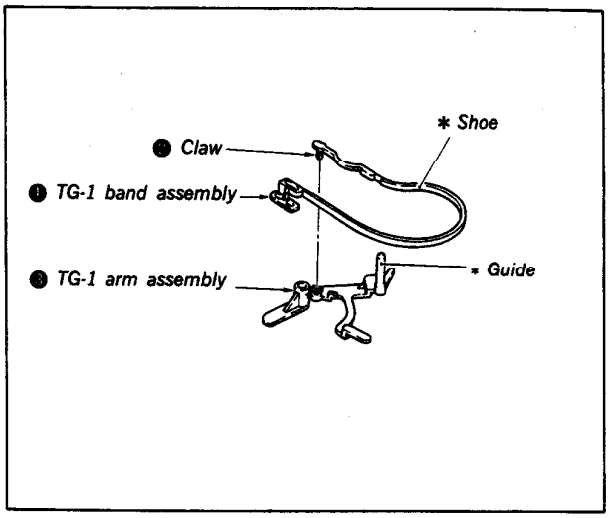


Fig. 19.

3-9. Soft Brake Assembly (Fig.20.)

1. Removal

1) Refer to 1-1. and 1-2. and remove the cassette arm assembly and LS cassette compartment assembly.
2) Refer to 3-1. and remove the reel lock lever assembly.
3) Refer to 3-2. and remove the pendulum stopper plate.
4) Remove tension coil spring ❶ from claw ❷.
5) Remove soft brake assembly ❸.

2. Mounting

1) Mount soft brake assembly ❸. Insert section Ⓐ under LS plate spring ❹.
2) Hook tension coil spring ❶ onto claw ❷.
3) Refer to 3-2. and mount the pendulum stopper plate.
4) Refer to 3-1. and mount the reel lock lever assembly.
5) Refer to 1-1. and 1-2. and mount the cassette arm assembly and LS cassette compartment assembly.

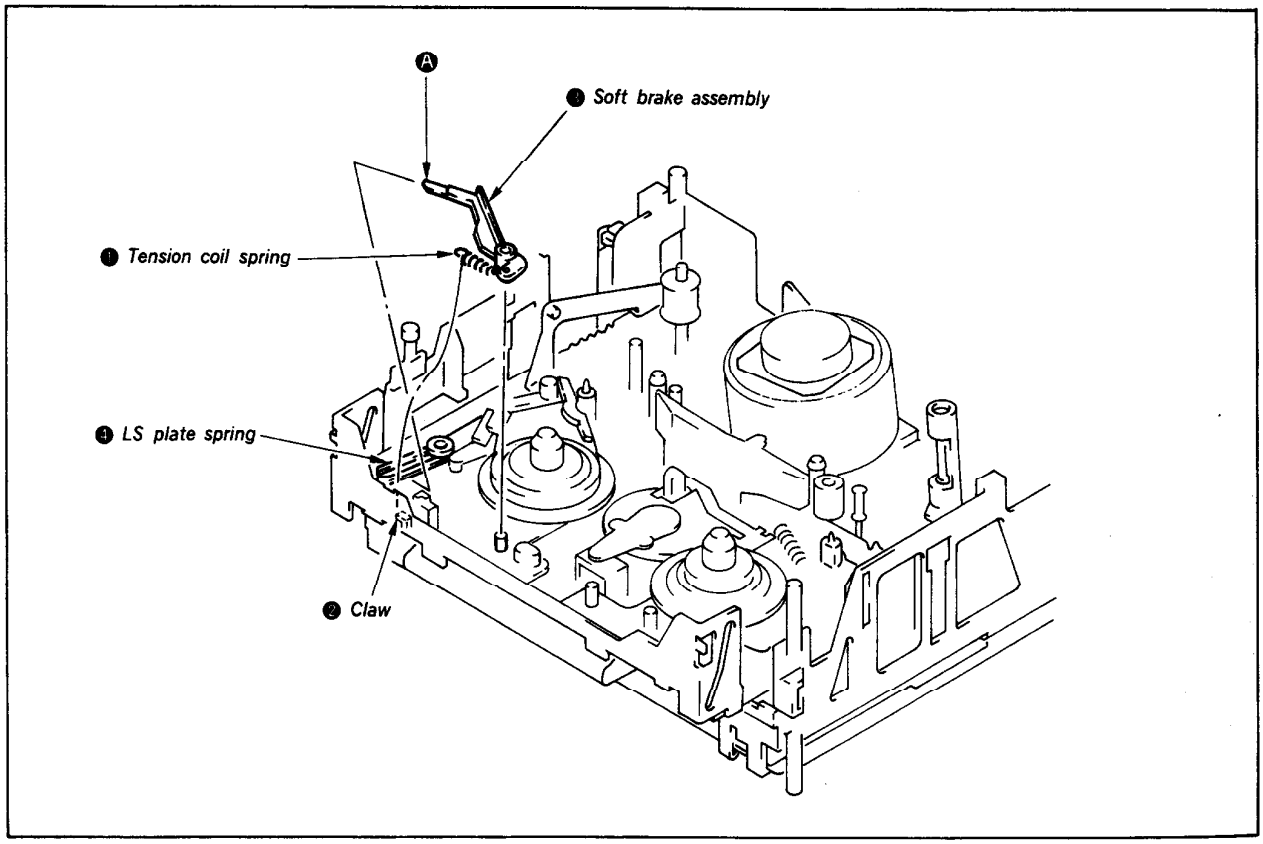


Fig. 20.

3-10. LS Chassis Assembly (Fig. 21.)

1. Removal

1) Refer to 1-1. and 1-2. and remove the cassette arm assembly and LS cassette compartment assembly.
2) Put into [BLANK after GUIDE LOAD] mode.
3) Remove stopper washer ⓫.
4) Remove the three screws ❹ and LS guides ❸.
5) Remove LS chassis assembly ❺ in the direction of arrow Ⓐ.
6) Unsolder the nine locations on flexible board ❶ indicated in Fig. A with a soldering iron, and remove flexible board ❶, which is stuck onto the mechanical chassis.

2. Mounting

1) Remove the tape on the back of a new flexible board ❶ and stick on to the mechanical chassis, lining up to the shaft and pattern.
2) Solder the nine locations on flexible board ❶ as shown in Fig. B.
3) Apply grease to the portion of LS chassis assembly ❺ indicated by the arrow, as shown in Fig. C.
4) Move reel lock lever assembly ⓭ in the direction of arrow Ⓔ, and mount LS chassis assembly ❺ by lining up the four mounting holes to the mechanical chassis shafts.
5) Engage the two claws ❼ with the drum base.
6) Move TG-7 arm assembly ❽ in the direction of arrow Ⓕ (move gently with tweezers, etc.) and insert into the mechanical chassis hole.
7) As shown in Fig. D, inser LS gear assembly pin ⓬ into the LS cam plate long hole ❾.
8) Insert pinch arm B pin into pinch arm A long hole.
9) Insert TS arm ⓮ into pinch arm A ⓯ U groove.
10) Confirm that reel lock lever assembly ❻ does not ride up on reel lock lever B ⓰.
11) Confirm that TG-1 release arm ❷ does not ride up on M slider ⓭.
12) Confirm that the pendulum gear arm assembly ⓪ pin can be seen through the pendulum stopper plate ❿ hole.
Note:
Confirm that the mechanical chassis assembly parts are assembled correctly.
13) After confirming correct assembly, mount LS guides ❸ and screw ❹.
14) Mount stopper washer ⓫.
15) Use the mode selector and confirm that loading and threading are performed smoothly.
16) Refer to 1-1. and 1-2. and mount the cassette arm assembly and LS cassette compartment assembly.
Note:
Perform soldering quickly.

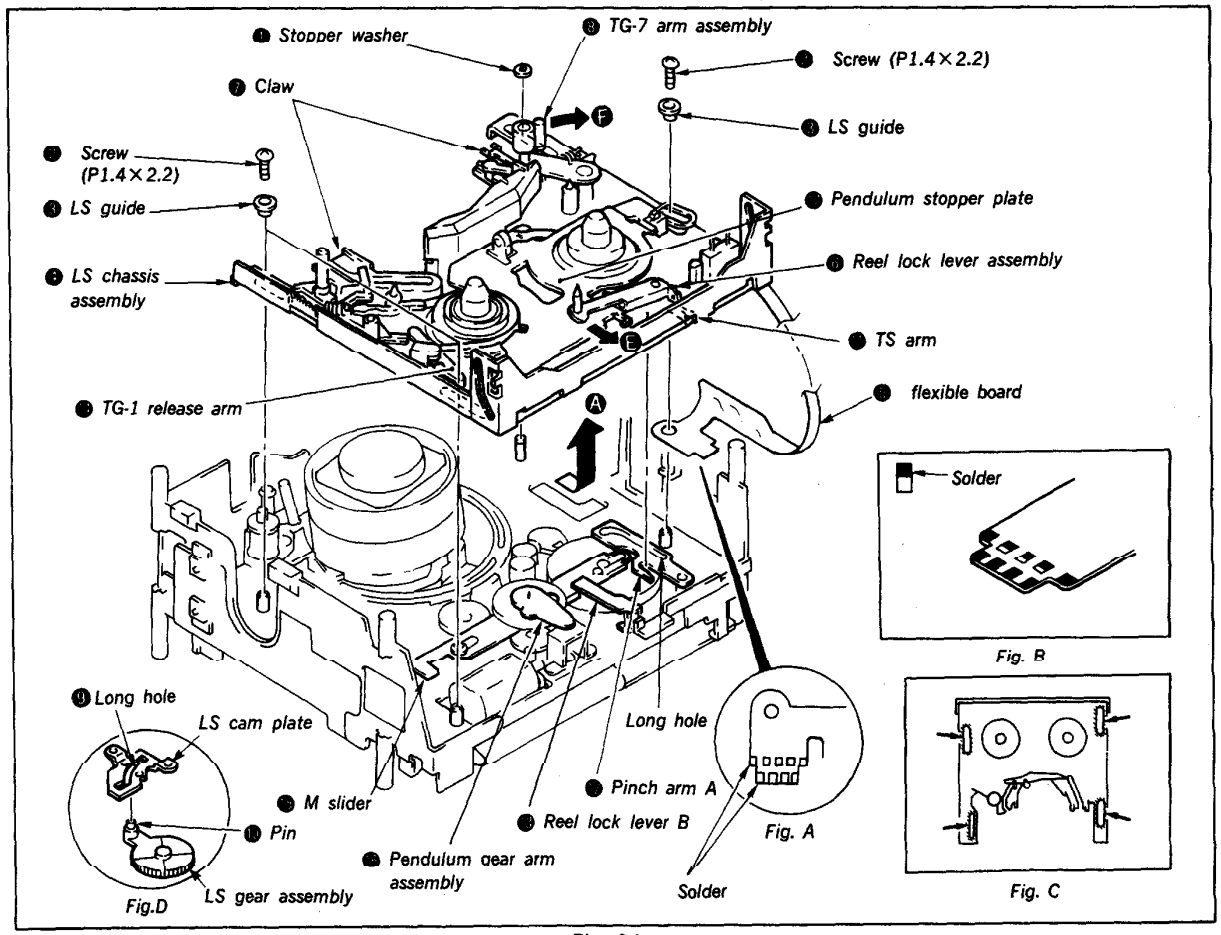


Fig. 21.

3-11. TG-7 Arm Assembly (Fig. 22)

1. Removal

1) Refer to 1-1. and 1-2. and remove the cassette arm assembly and LS cassette compartment assembly.
2) Refer to 3-10. and remove the LS chassis assembly.
3) Turn the LS chassis assembly over.
4) Remove stopper washer ❶ (t=0.3mm).
5) Remove TG-7 spring ❸ from hook ❹ and remove the TG-7 arm assembly ❷.

Note 1:
Be careful not to bend the * flexible board which is attached to the chassis.

Note 2:
Be careful not to bend the TG-7 arm.

2. Mounting

1) As shown in Fig. A, apply more than ⅓ but less than ½ drop of oil to the section of the shaft indicated by the arrow.
2) Mount TG-7 arm assembly ❷ via TG-7 spring ❸.
3) Hook TG-7 spring ❸ on claw ❺.
4) Mount stopper washer ❶.
5) Refer to 3-10. and mount the LS chassis assembly.
6) Refer to 1-1. and 1-2. and mount the cassette arm assembly and LS cassette compartment assembly.
7) Perform guide height adjustment, referring to 4. Tape Path Adjustment.

Note:
Confirm that stopper washer ❶ is completely in the shaft groove.

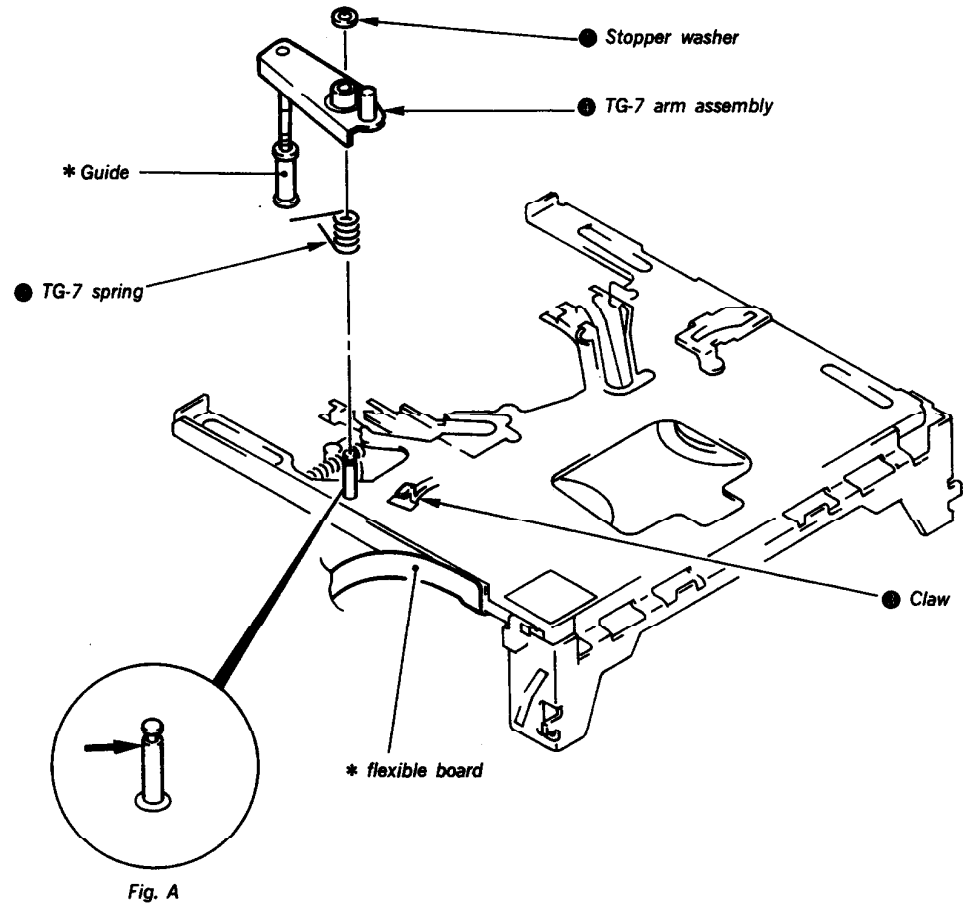


Fig. A

Fig. 22.

3-12. Pinch Arm A Assembly (Fig. 23)

1. Removal

1) Refer to 1-1. and 1-2. and remove the cassette arm assembly and LS cassette compartment assembly.
2) Refer to 3-10. and remove the LS chassis assembly.
3) Remove stopper washer ❶.
4) Remove pinch arm A assembly ❷.

2. Mounting

1) As shown in Fig. A, apply more than ⅓ but less than ½ drop of oil to the section of the shaft indicated by the arrow.
2) As shown in Fig. B, apply grease to the section of pinch arm A assembly ❷ indicated by the arrow.
3) Insert pinch arm A assembly ❷ pin in the cam assembly ❸ outer groove and mount on the shaft.
4) Mount stopper washer ❶.
5) Refer to 3-10. and mount the LS chassis assembly.
6) Refer to 1-1. and 1-2. and mount the cassette arm assembly and LS cassette compartment assembly.

Note:

Confirm that stopper washer ❶ is completely in the shaft groove.

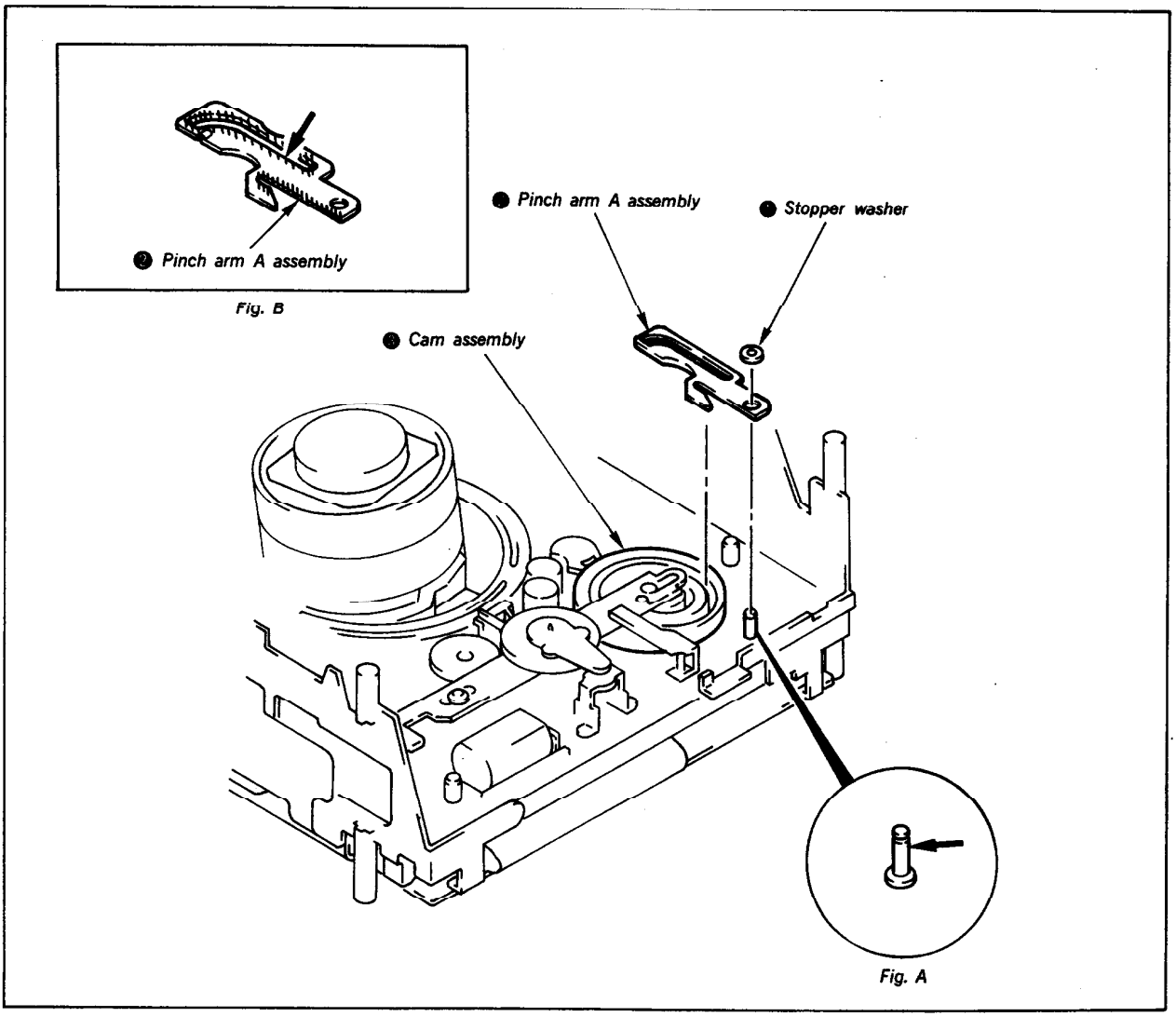


Fig. 23.

3-13. M Slider Assembly (Fig. 24)

1. Removal

1) Refer to 1-1. and 1-2. and remove the cassette arm assembly and LS cassette compartment assembly.
2) Refer to 3-10. and remove the LS chassis assembly.
3) Remove pendulum gear arm ❶.
4) Remove E ring ❷ and reel lock lever B ❸.
5) Remove stopper washer ❹.
6) Remove stopper washer ❺ and M slider assembly ❻.

2. Mounting

1) As shown in Fig. A, apply grease to the section of M slider assembly ❻ indicated by the arrow.
2) Insert M slider assembly ❻ pin into cam assembly ❼ inner groove and mount.
3) Mount stopper washers ❺ and ❹.
4) As shown in Fig. B, apply grease to the portion of reel lock lever B ❸ indicated by the arrow.
5) As shown in Fig. C and E, apply more than ⅓ drop but less than ½ drop of oil to the portions of the shafts indicated by the arrows.
6) As shown in Fig. D, mount reel lock lever B so that it is between the protrusion and the pin.
7) Mount E ring ❷.
8) Apply more than ⅓ but less than ½ drop of oil to the relay base assembly ❾ shaft outer circumference.
9) Mount pendulum gear arm ❶.
10) Refer to 3-10. and mount the LS chassis assembly.
11) Refer to 1-1. and 1-2. and mount the cassette arm assembly and LS cassette compartment assembly.

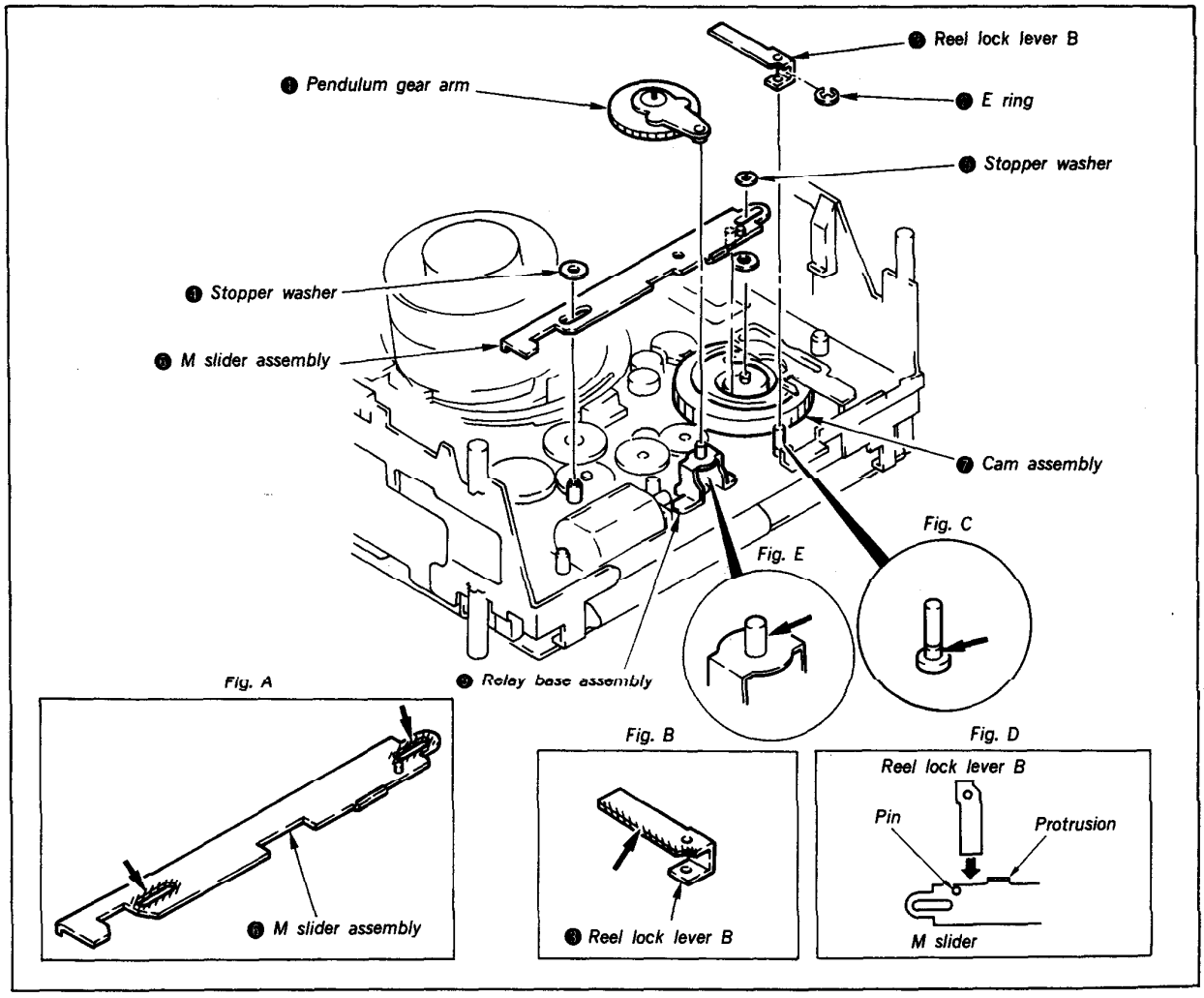


Fig. 24.

3-14. TG-4 Base Assembly, TG-5 Base Assembly

1. Removal

1) Refer to 1-1. and 1-2. remove the cassette arm assembly and LS cassette compartment assembly.
2) Refer to 3-10. and remove the LS chassis assembly.
3) Set for [GUIDE LOAD] mode and remove TG-4 base assembly ● and TG-5 base assembly ● from the drum base groove.
4) Rotate the top of pin ● in the direction of arrow Ⓐ around TG-4 base assembly ● pin ● and remove from the notch ●. (Fig. 25.)
5) Remove pin ● from notch ● hole.
6) Move TG-5 base assembly ● in the direction of arrow Ⓐ and remove from notch ●. (Fig. 26.)
7) Remove TG-5 base assembly ● from pin ● (Fig. 27.)

Note:

Be careful not to touch the guide, marked ＊.

2. Mounting

1) Insert pin ● into TG-5 base assembly ● hole.
2) Move TG-5 base assembly ● in the direction of arrow Ⓑ and insert under notch ●.
3) Insert TG-4 base assembly ● pin ● into notch ● hole.
4) Rotate TG-4 base assembly ● pin ● in the direction of arrow Ⓑ and insert into notch ●.
5) Confirm that TG-4 base assembly ● and TG-5 base assembly ● are mounted as shown in Fig. A and B respectively.
6) While slowly setting to [BLANK after GUIDE LOAD] mode, insert TG-4 base assembly ● and TG-5 base assembly ● into the drum base groove.
   If the positioning is wrong, they will catch on the drum base groove entrance and stop moving, so be sure to insert carefully into the drum base groove.
7) Refer to 3-10. and mount the LS chassis assembly.
8) Refer to 1-1. and 1-2. and mount the cassette arm assembly and LS cassette compartment assembly.

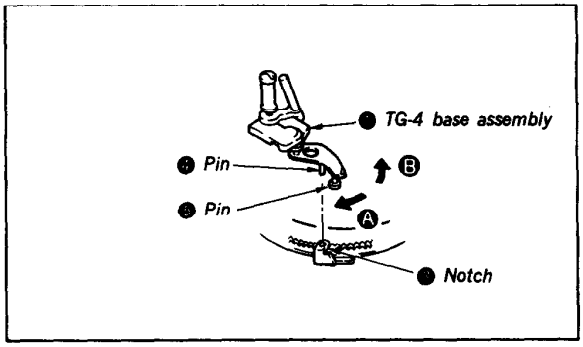


Fig. 25.

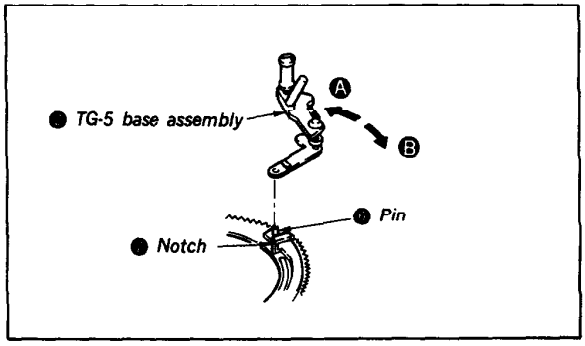


Fig. 26.

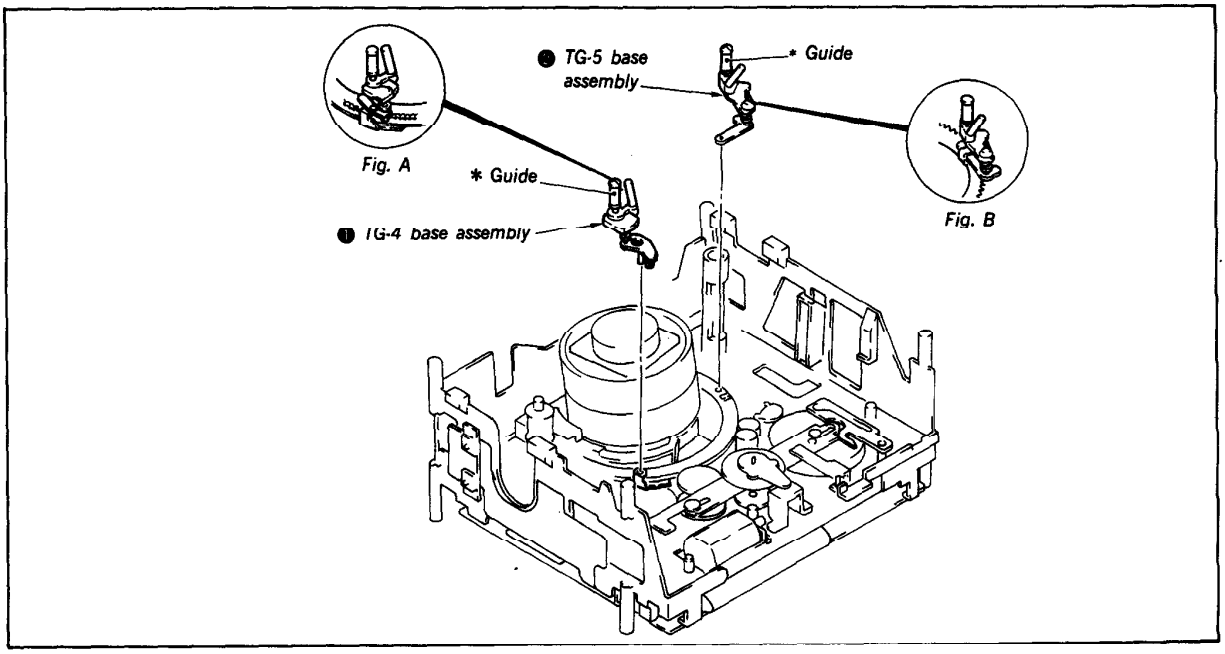


Fig. 27.

3-15. Loading Slider T Assembly (Fig.28.)

1. Removal

1) Refer to 1-1. and 1-2. and remove the cassette arm assembly and LS cassette compartemet assembly.
2) Refer to 3-10. and remove the LS chassis assembly.
3) Refer to 3-14. and remove the TG-4 base assembly and TG-5 base assembly.
4) Refer to 3-24. and remove the drum unit.
5) Remove screw ❶, plate spring T ❷ and T slider stopper ❸.
6) Remove screw ❹ and slider support ❺.
7) Remove the two stopper washers ❻ and loading slider T assembly ❼.

2. Mounting

1) As shown in Fig. A, apply grease to the portion of plate spring T ❷ indicated by the arrow.
2) As shown in Fig. B, apply grease to the portion of loading slider T assembly ❼ indicated by the arrow.
3) Line up loading slider T assembly hole ❽ and loading slider S assembly hole ❾ and mount loading slider T assembly ❼.
4) Mount the two stopper washers.
5) Line up slider support ❺ to the dowel and mount with screw ❹.
6) Mount T slider stopper ❸ plate spring T ❷ with screw ❶.
7) Refer to 3-24. and mount the drum unit.
8) Refer to 3-14. and mount the TG-4 base assembly and TG-5 base assembly.
9) Refer to 3-10. and mount the LS chassis assembly.
10) Refer to 1-1. and 1-2. and mount the cassette arm assembly and LS cassette compartment assembly.

Note 1:

Make sure that stopper washer ❻ is completely in the shaft groove.

Note 2:

After mounting loading slider T assembly ❼, perform phase adjustment, referring to 3-17.

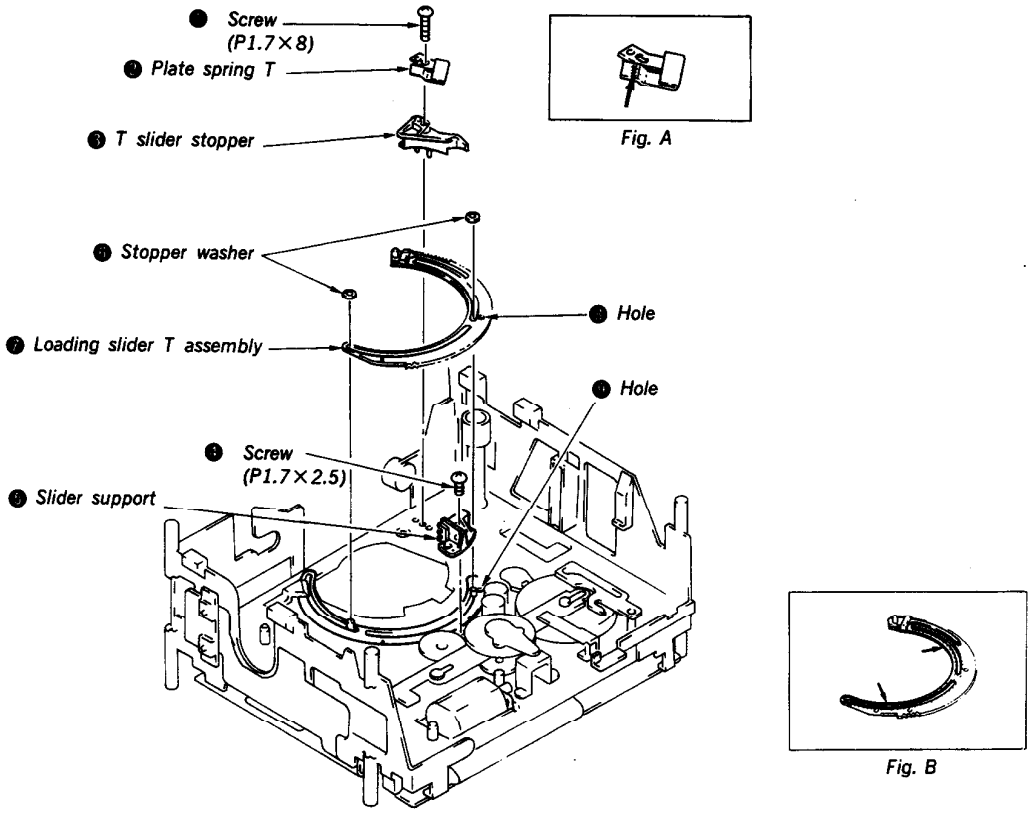


Fig. 28.

3-16. Loading Slider S Assembly (Fig. 29.)

1. Removal

1) Refer to 1-1. and 1-2. and remove the cassette arm assembly and LS cassette compartment assembly.
2) Refer to 3-10. and remove the LS chassis assembly.
3) Refer to 3-14. and remove the TG-4 base assembly and TG-5 base assembly.
4) Refer to 3-24. and remove the drum unit.
5) Refer to 3-15. and remove the loading slider T assembly.
6) Remove screw ❶ and S slider stopper ❷.
7) Remove the two guide rollers ❸ and loading slider S assembly ❹.

2. Mounting

1) As shown in Fig. A, apply a little grease to the portion of shaft ❺ indicated by the arrows.
2) As shown in Fig. B, apply grease to the portions of loading slider S assembly ❹ indicated by the arrows.
3) Line up loading slider S assembly hole ❻ and chassis hole ❼ and mount loading slider S assembly ❹.
4) Mount the two guide rollers ❸.
5) Line up S slider stopper ❷ to the dowel and mount with screw ❶.
6) Refer to 3-15. and mount the loading slider T assembly.
7) Refer to 3-24. and mount the drum unit.
8) Refer to 3-14. and mount the TG-4 base assembly and TG-5 base assembly.
9) Refer to 3-10. and mount the LS chassis assembly.
10) Refer to 1-1. and 1-2. and mount the cassette arm assembly and LS cassette compartment assembly.

Note:

After mounting loading slider T assembly, refer to 3-17. and perform phase adjustment.

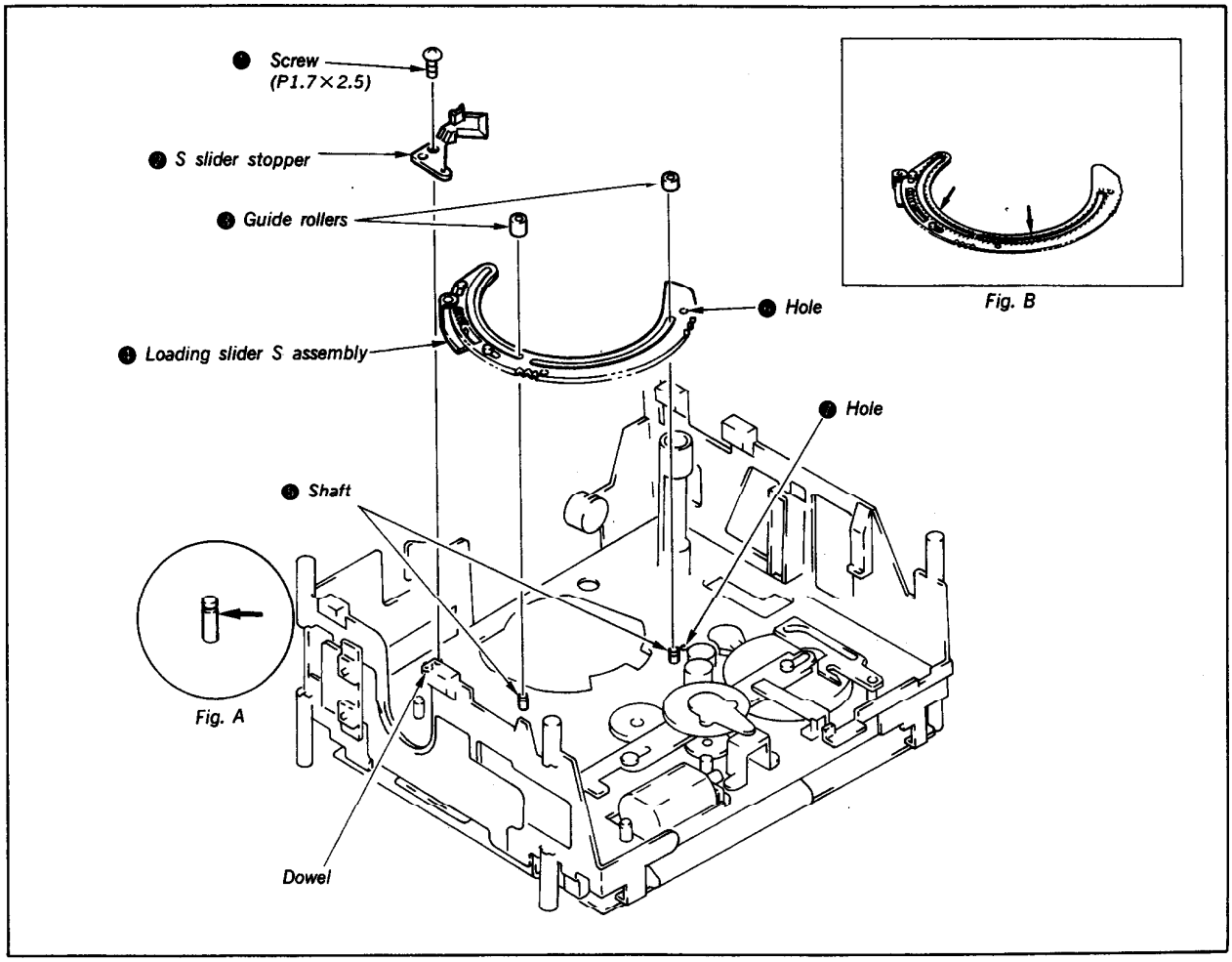


Fig. 29.

3-17. Phase Adjustment (Fig. 30.)

1. Removal

1) Refer to 1-1. and 1-2. and remove the cassette arm assembly and LS cassette compartment assembly.
2) Refer to 3-10. and remove the LS chassis assembly.
3) Refer to 3-14. and remove the TG-4 base assembly and TG-5 base assembly.
4) Refer to 3-24. and remove the drum unit.
5) Remove stopper washer ⑧ and loading gear S ⑥.
6) Remove stopper washer ⑩ and LS gear A ⑦.

2. Adjustment

1) Confirm that it is in BLANK after GUIDE LOAD mode.
2) Line up the positions of loading slider T assembly ② hole, loading slider S assembly ③ hole and the hole in the mechanical chassis, and insert a rod ⑫ with diameter of 1mm.
3) Line up the positions of LS gear C assembly ① hole and the hole in the mechanical chassis, and insert a rod ⑫ with diameter of 1mm.
4) As shown in Fig. A, rotate loading gear M ④ so that the notch of loading gear M ⑤ comes to the loading gear S ⑥ side.
5) As shown in Fig. B, position and mount LS gear A ⑦ so that loading slider T assembly ② hole and LS gear A ⑦ hole are in a straight line.
6) Mount stopper washer ⑧.
7) Mount loading gear S ⑥ and stopper washer ⑩.

Note:
Make sure that stopper washers ⑧ and ⑩ are completely in the shaft groove.

3. Mounting

1) As shown in Fig. C, apply grease (amount: about the size of a grain of rice) to the five locations on cam assembly ⑨ inside groove.
2) Refer to 3-24. and mount the drum unit.
3) Refer to 3-14. and mount the TG-4 base assembly and TG-5 base assembly.
4) Refer to 3-10. and mount the LS chassis assembly
5) Refer to 1-1. and 1-2. and mount the cassette arm assembly and LS cassette compartment assembly.

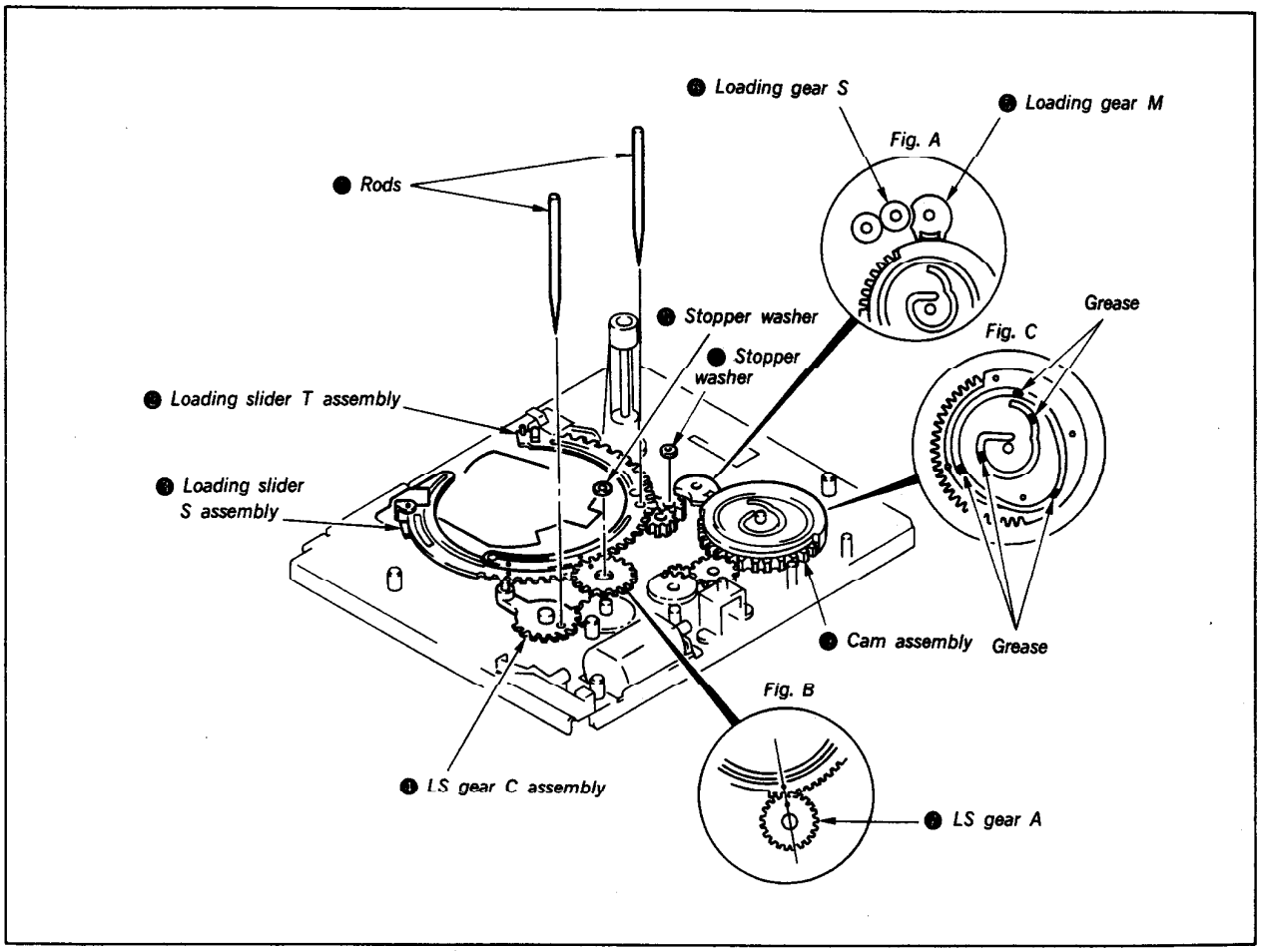


Fig. 30.

3-18. Gear Tray In Operation Check (Fig. 31.)

1. Removal

1) Refer to 1-1. and 1-2. and remove the cassette arm assembly and LS cassette compartment assembly.
2) Refer to 3-10. and remove the LS chassis assembly.
3) Refer to 3-14. and remove the TG-4 base assembly and TG-5 base assembly.
4) Refer to 3-24. and remove the drum unit.
5) Refer to 3-21. and remove the LM motor assembly.

2. Check

1) Insert the tip of tweezers into cam assembly ● hole.
2) Rotate cam assembly ● once in the direction of arrow Ⓐ, then once in the direction of arrow Ⓑ. Repeat this operation three times.
3) At this time, check that the gears and sliders indicated in the figure rotate smoothly and that there is no load.

Note:

Be careful not to scratch the surface of the mechanical chassis when inserting the tweezer tips into the cam assembly ● hole.

3. Mounting

1) Refer to 3-21. and mount the LM motor assembly.
2) Refer to 3-24. and mount the drum unit.
3) Refer to 3-14. and mount the TG-4 base assembly and TG-5 base assembly.
4) Refer to 3-10. and mount the LS chassis assembly.
5) Refer to 1-1. and 1-2. and mount the cassette arm assembly and LS cassette compartment assembly.

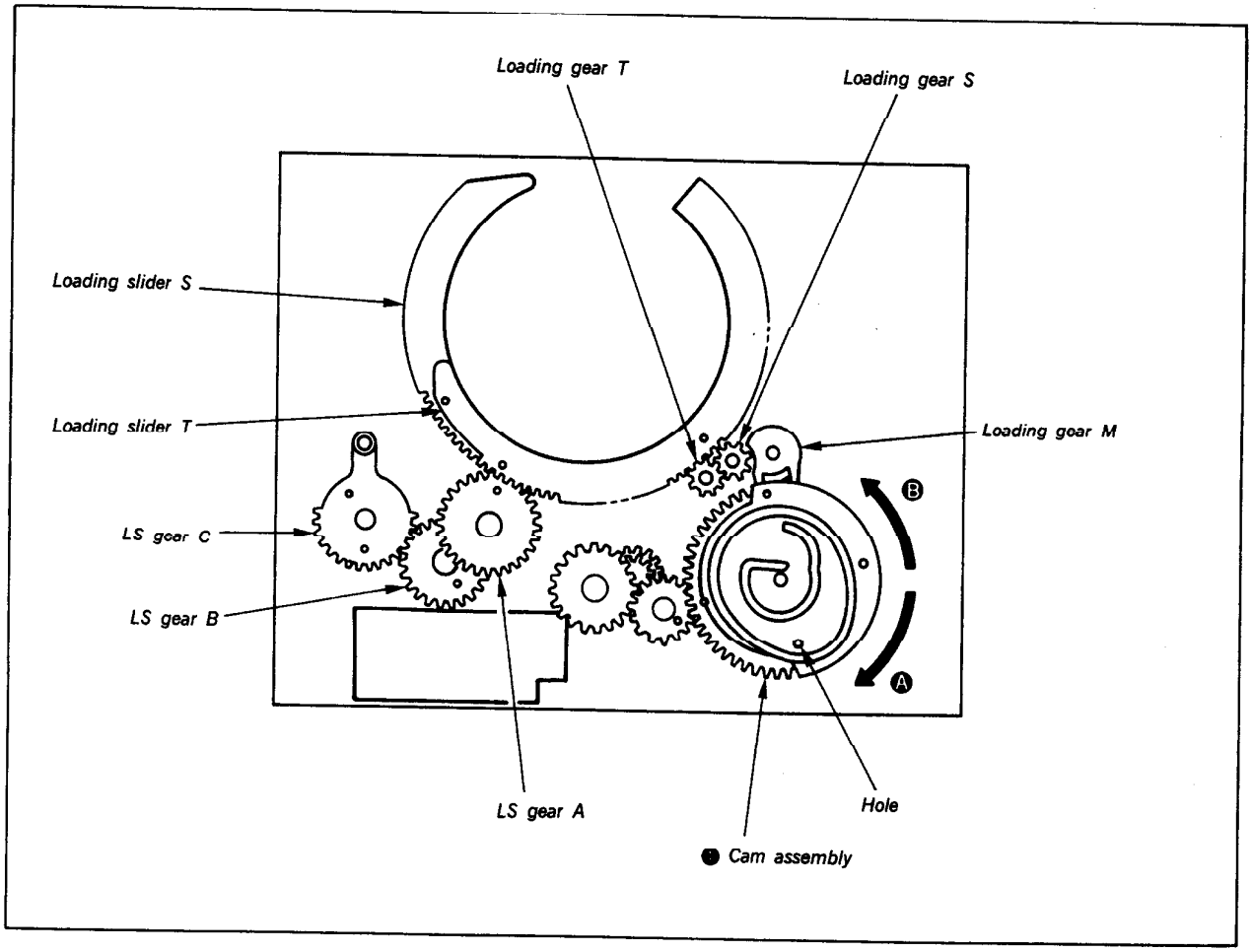


Fig. 31.

3-19. Flexible Board (Fig. 32.)

1. Removal

1) Refer to 1-1. and 1-2. and remove the cassette arm assembly and LS cassette compartment assembly.
2) Refer to 3-10. and remove the LS chassis assembly.
3) Refer to 3-4. and remove the T reel table assembly.
4) Refer to 3-3. and remove the S reel table assembly.
5) Release the two claws ⑧, lift up the push switch and peel flexible board ⑨ off of the LS chassis.

Note:

When peeling off flexible board ⑨, be careful not to tear it, and also be careful not to pull the LS chassis out of shape.

2. Mounting

1) Clean the portion of the LS chassis assembly where flexible board ⑨ is to be attached with ethanol.
2) Remove the tape on the back of a new flexible board, line up to LS chassis shaft ⑩ and claw ⑪ and mount.
3) Line up the two dowels ⑫, mount on claws ⑪, and line up dowel ⑬ to flexible board ⑨ hole and mount.
4) Refer to 3-3. and mount the S reel table assembly.
5) Refer to 3-4. and mount the T reel table assembly.
6) Refer to 3-10. and mount the LS chassis assembly.
7) Refer to 1-1. and 1-2. and mount the cassette arm assembly and LS cassette compartment assembly.

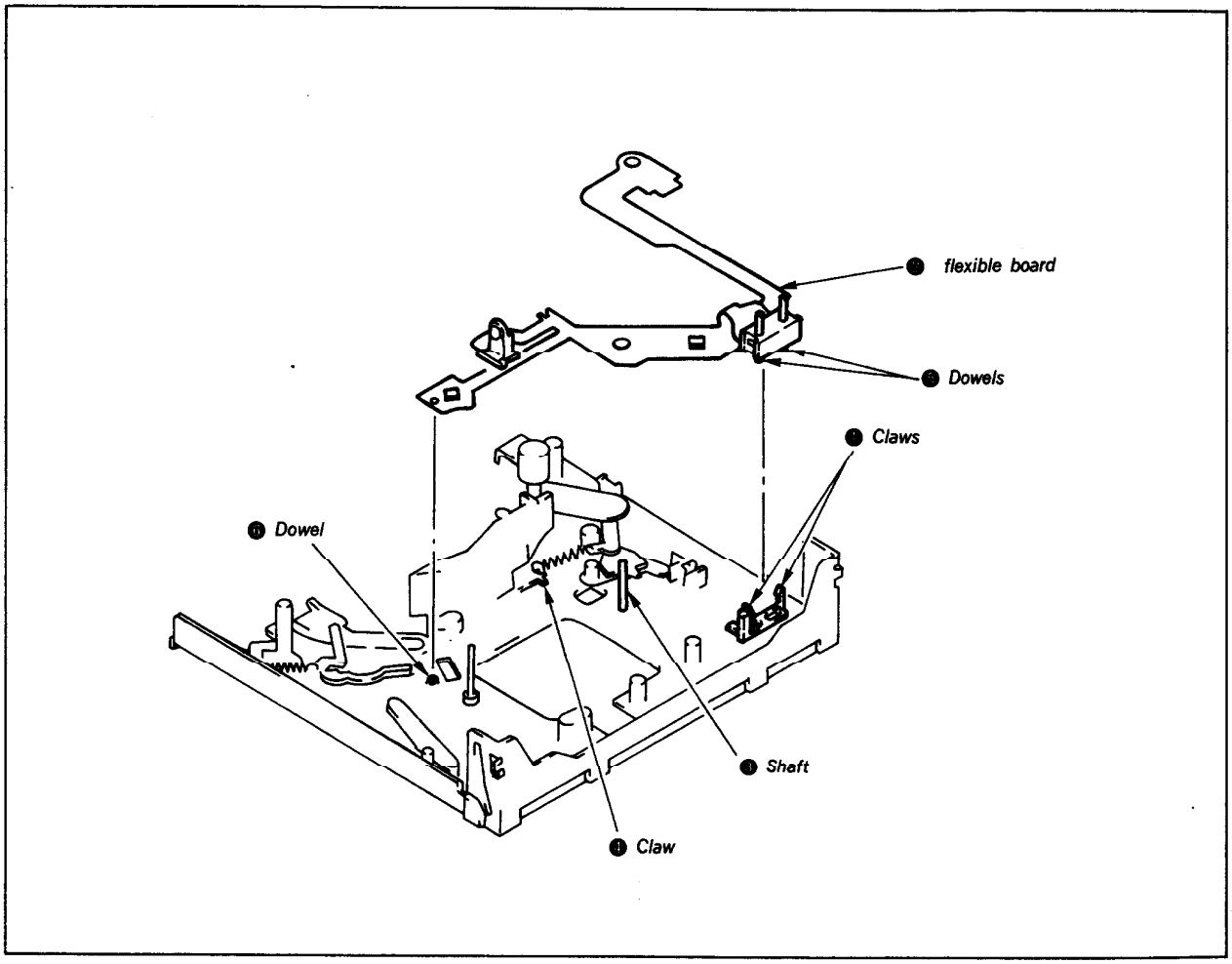


Fig. 32.

3-20. Cassette Compartment Lock Assembly (Fig. 33.)

1. Removal

1) Refer to 1-1. and 1-2. and remove the cassette arm assembly and LS cassette compartment assembly.
2) Refer to 3-10. and remove the LS chassis assembly.
3) Put into [READY] mode.
4) Remove screws ❶ and ❷ and remove cassette compartment lock assembly ❸.
5) Remove screw ❹ and CCD SW ❺.

2. Mounting

1) Mount CCD SW ❺ with screw ❹.
2) Line up cassette compartment lock assembly ❸ to dowel ❻ and mount.
3) Tighten screws ❹ and ❷.
4) Put into [BLANK after GUIDE LOAD] mode.
5) Refer to 3-10. and mount the LS chassis assembly.
6) Refer to 1-1. and 1-2. and mount the cassette arm assembly and LS cassette compartment assembly.

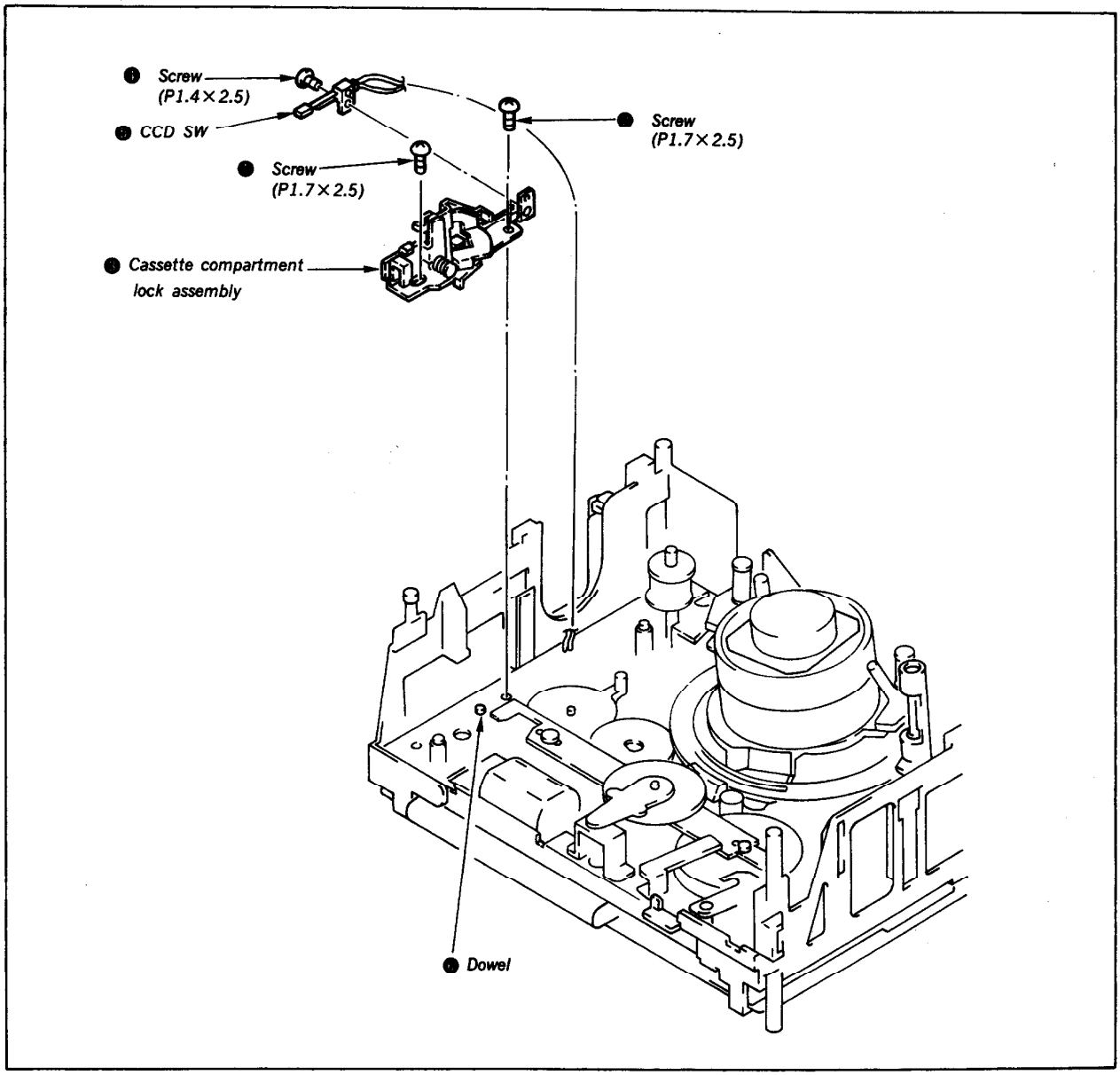


Fig. 33.

3-21. LM Motor Assembly (Fig. 34.)

1. Removal

1) Open the PC board back of mechanism chassis with reference to the Service Manual.
2) Remove screws ❷, ❸ and ❺ and remove LM motor assembly ❶ in the direction of arrow Ⓐ.
3) Remove stopper washer ❽ from shaft ❽ and remove worm wheel ❽.
4) Remove the two screws ❺ and separate motor holder assembly ❻ and DC motor ❼.
5) Unsolder the two cords ❽ coming out of DC motor ❼ and remove the DC motor from the mechanical chassis.

2. Mounting

1) Apply ⅓ drop of oil to shaft ❽ and mount worm wheel❽.
2) Apply grease about the size of a grain of rice to worm ❾.
3) Assemble motor holder assembly ❻ and DC motor ❼.
4) Solder the two cords on DC motor ❼ in the two locations shown in Fig. A.
5) Line up mechanical chassis pin ❽ and motor holder assembly ❻ hole, and mount.
6) Tighten screws ❸, ❹ and ❷ in that order.

Note 1:

Soldering should be done at 260 deg. C, within five seconds.

Note 2:

Pull out the cords on DC motor ❼ so that they are not slack on the chassis.

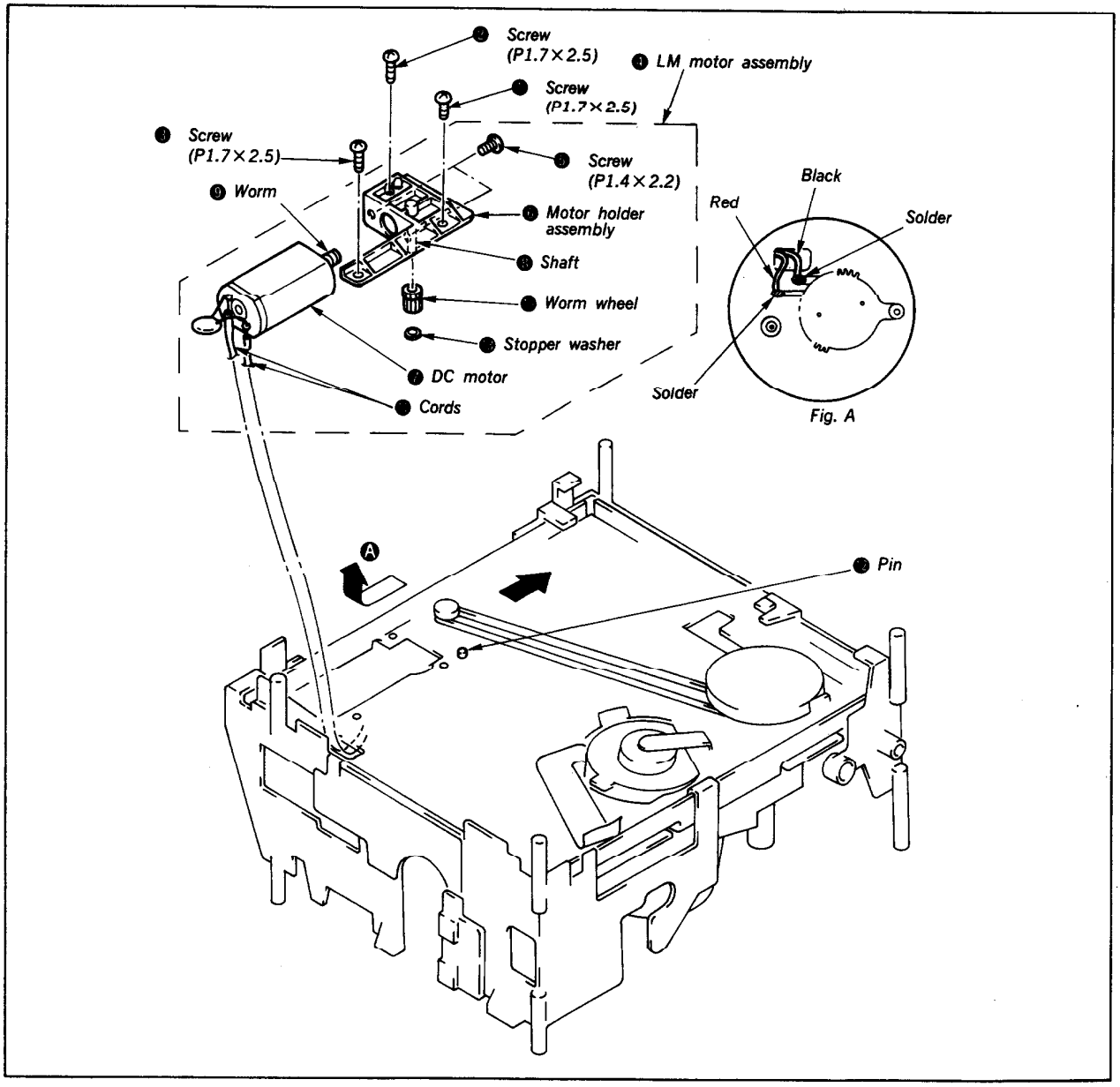


Fig. 34.

3-22. Capstan Motor Assembly (Fig. 35.)

1. Removal

1) Open the PC board back of mechanism chassis with reference to the Service Manual.
2) Remove screws ❶ and ❷ and capstan motor assembly ❺.
3) Remove stopper washer ❻ and conversion gear assembly ❼ and relay belt ❸.

Note:

Be careful not to touch the capstan motor shaft, oil seal and rotor, all marked ∗. When removing, hold the housing, marked ∗. (Do the same when mounting.)

2. Mounting

1) As shown in Fig. A, apply more than ⅓ but less than ½ drop of oil to the portion of shaft ❽ indicated by the arrow.
2) Place relay belt ❸ on conversion gear assembly ❼ and mount on shaft ❽.
3) Secure with stopper washer ❻.
4) Place pulley ❹ on relay belt ❸ and mount capstan motor assembly ❺ on the mechanical chassis.
5) As shown in Fig. B, confirm that the capstan motor and mechanical chassis surfaces are horizontal, then tighten screws ❶ and ❷ in that order.

Note 1:

Make sure that stopper washer ❻ is completely in the shaft groove.

Note 2:

Be careful not to stretch relay belt ❸.

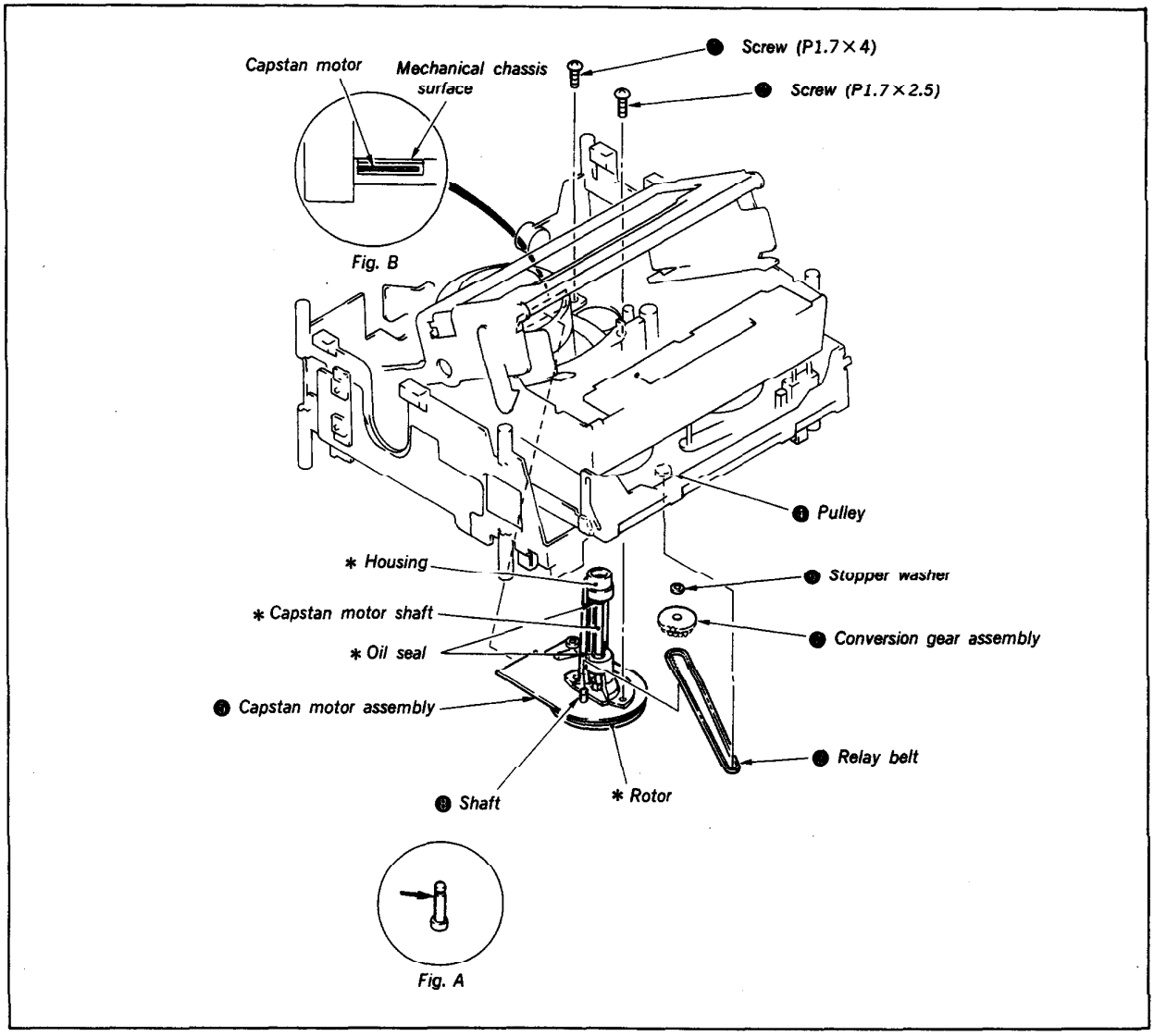


Fig. 35.

3-23. TG-2 (Fig. 36.)

1. Removal

1) Remove TG-2 nut ⓫.
2) Remove upper flange bearing ⓬, TG-2 flange ⓭, TG-2 roller ⓮, TG-2 sleeve ⓯, TG-2 lower flange ⓰, Lower flange bearing ⓱ and pressure coil spring ⓲.

Note 1:
When removing TG-2 nut ⓫, be careful that other parts are not pushed off by pressure coil spring ⓲.

Note 2:
Wear gloves when mounting and removing TG-2 flange ⓭ and TG-2 roller ⓮.

2. Mounting

1) Mount pressure coil spring ⓲, Lower flange bearing ⓱, TG-2 lower flange ⓰, TG-2 sleeve ⓯, TG-2 roller ⓮, TG-2 flange ⓭ and upper flange bearing ⓬.
2) Mount TG-2 nut ⓫.
3) Pre-set TG-2 height.

3. TG-2 Height Pre-set

1) Push upper flange bearing ⓬ down as shown in Fig. A.
2) Screw in TG-2 nut ⓫ until the slit is at the same height as TG-2 shaft ⓳ upper surface.
3) As shown in Fig. B, rotate TG-2 nut ⓫ 180 degrees in the direction of the arrow.

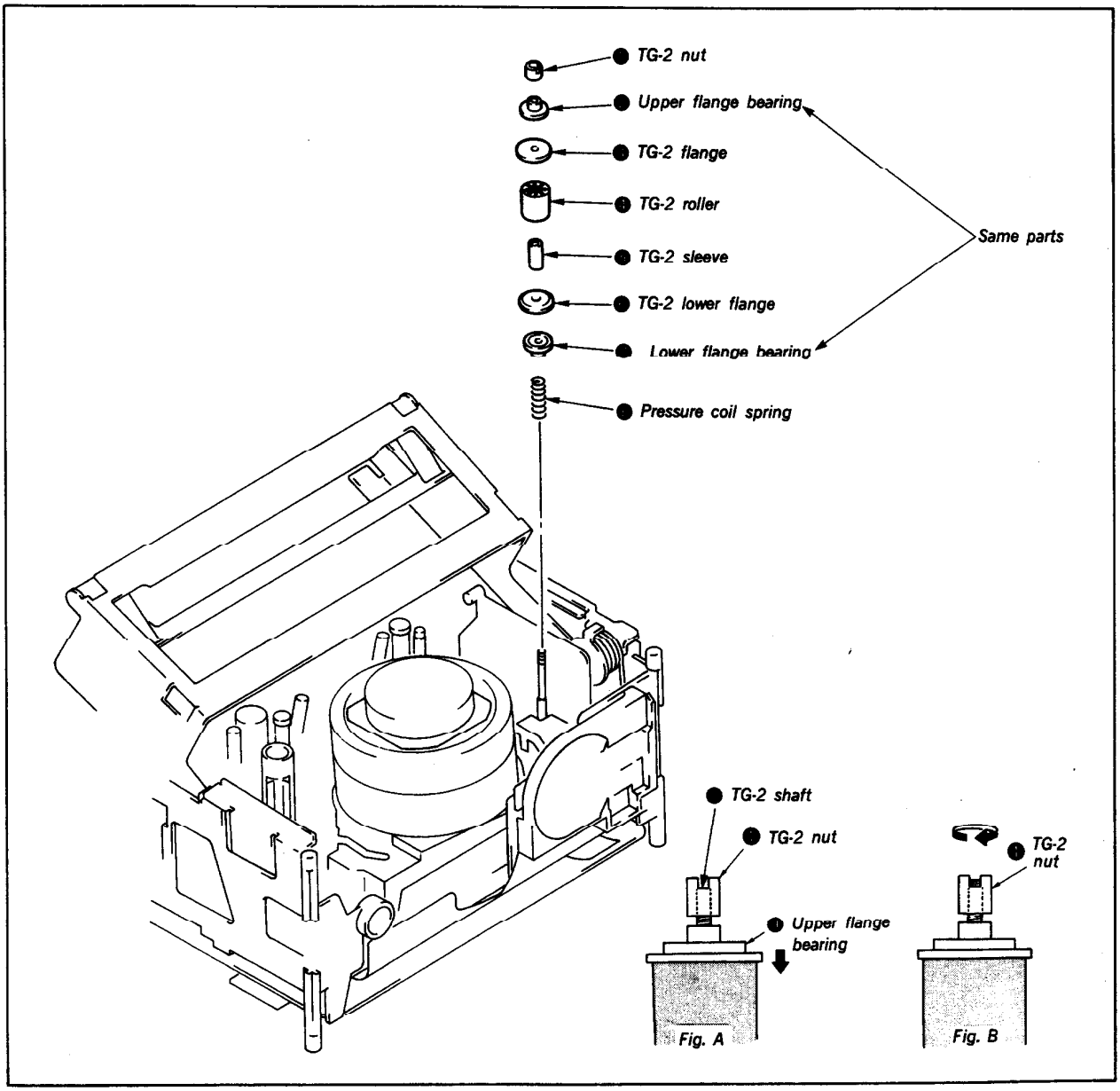


Fig. 36.

3-24. Drum Unit (Fig. 37.)

1. Removal

There are two types of Drum unit as follows.

ⓐ Connected to Drum unit with flexible board.

ⓑ Connected to Drum unit with harness. (Connector)

1) Set to [EJECT] mode.
2) Remove the flexible board or the connector, open the PC board back of mechanism chassis with reference to the Service Manual.
3) Remove the two screws ❽ and screw ❾, and remove Drum base ❶ and Dew sensor ❿.
4) Remove the three screws ⓫ and Drum unit ❼.

2. Mounting

1) Mount Drum unit ❼ on Drum base ❶ and secure with the three screws ⓫.
2) Place Drum base ❶ on the mechanical chassis and mount with the two screws ❽.
3) Secure Dew sensor ❿ and Drum base ❶ with screw ❾.

Note:

Once screws ❽ and ❾ are loosend, do not use the same screws again.

4) As shown in Fig. A, apply grease to the porition indicated by the arrows.
5) Mount a flexible board or a connector to the board.
6) Perform 4, Tape Path Adjustment.

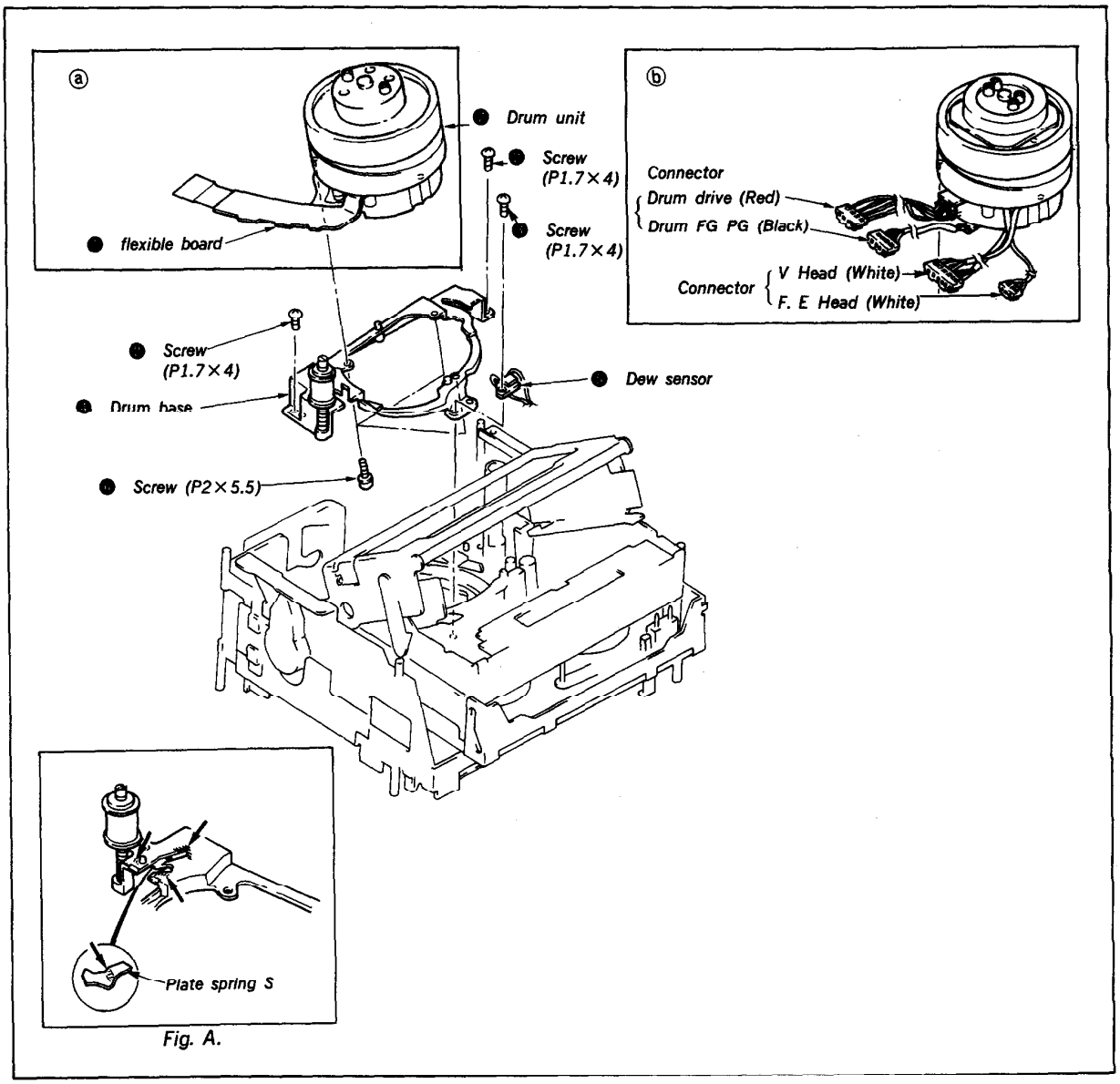


Fig. A.

Fig. 37.

3-25. Rotary Upper Drum Replacement

1. Removal

- If recording is possible, record first before removing.
- In case of the one with a Damper, remove the Damper by taking off two hexagonal socket bolts.

1) Remove the six solders indicated by ⓐ and confirm that the board and the pins on the bottom move freely, using tweezers or the like.
2) Remove the two hexagonal socket bolts ●. (Fig. 38.)
3) Mount jig ● (Ref. No. J-10) in the screw hole with the two screws ●, which are supplied. Then when the hexagonal socket bolt ● is screwed into the jig, the Rotary upper Drum will rise and can be removed. (Fig. 39.)

2. Mounting

1) Clean the flange surface and the surface of the Rotary upper Drum ● which comes into contact with it, and make sure there are no scratches or dirt.
2) Insert jig ● (Ref. No. J-10) into the Drum positioning hole, through the Rotary upper Drum ● positioning hole, and set the Rotary upper Drum.
   Note:
   Confirm that pin ● can be seen through Rotary upper Drum board hole at this time. (Fig. 40.)
3) Remove jig ● and lightly press Rotary upper Drum ● by hand. However, when it does not go all the way in, tighten hexagonal socket bolts ● alternately.
4) Insert jig ● into positioning hole ● again and make sure it goes in smoothly. If not, loosen the two hexagonal socket bolts ● and set again following step 3) under Removal.
5) Tighten the two hexagonal socket bolts ●.
6) Solder pins ●.
   Note:
   Be sure that solder does not go under the board.

- In case of the one with a Damper. Mount the damper with the two hexagonal socket bolts.
  Note:
  After mounting, perform 4. Tape Path Adjustment.

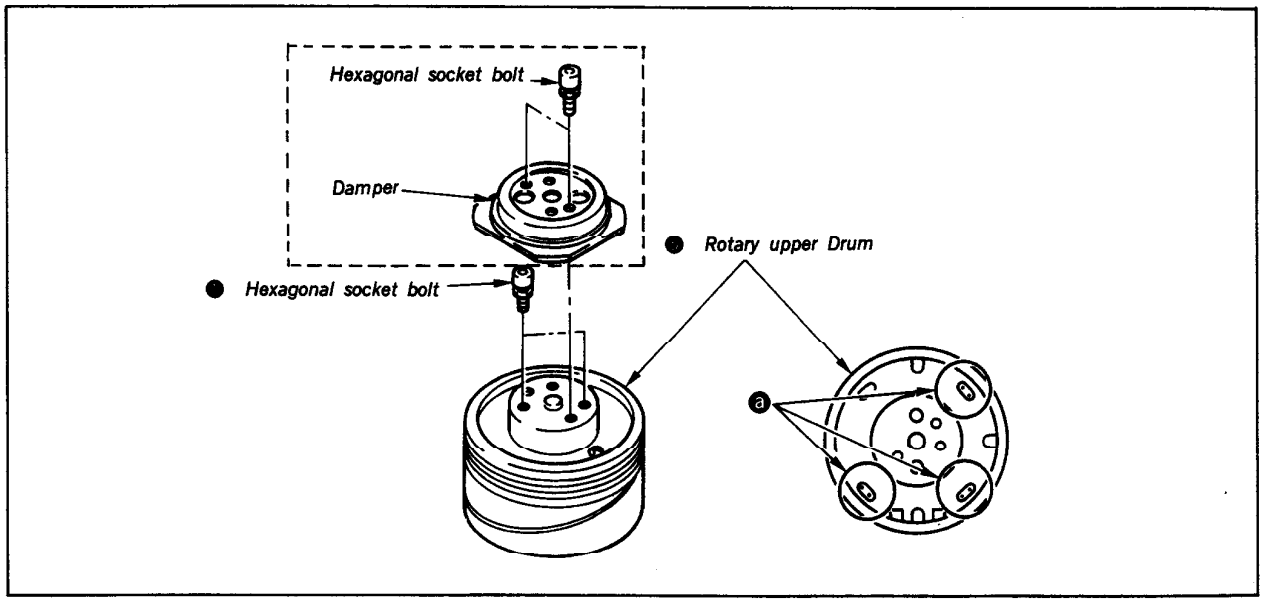


Fig. 38.

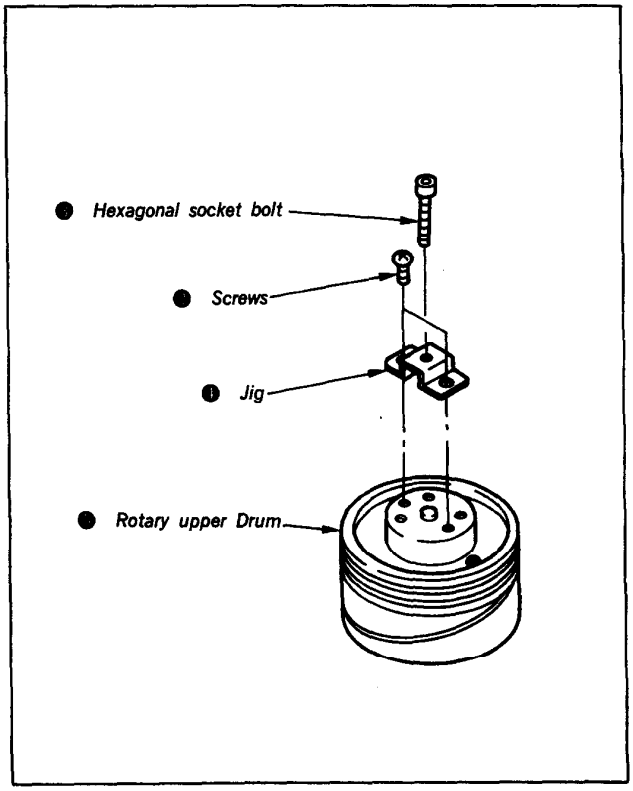

Hexagonal socket bolt
Screws
Jig
Rotary upper Drum

Fig. 39.

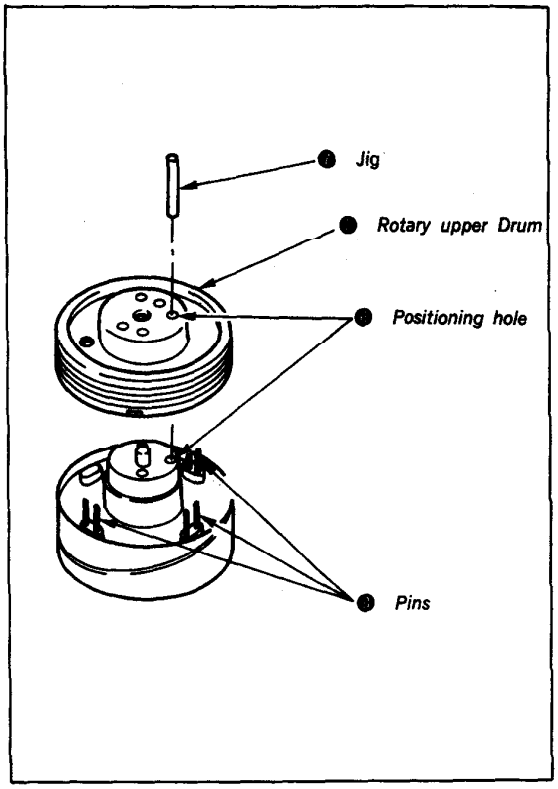

Jig
Rotary upper Drum
Positioning hole
Pins

Fig. 40.

3-26. Reel Table Height Check (Fig. 41.)

1. Removal

1) Refer to 1-1. and 1-2. and remove the cassette arm assembly and LS cassette compartment assembly.
2) Refer to 3-1. and remove the reel lock lever assembly.
3) Refer to 3-2. and remove the pendulum stopper plate.

2. Check

1) Confirm that the distances between the LS chassis ❶ and S reel table reel bearing surface ❷ and T reel table reel bearing surface ❸ respectively are 6.85 ±0.15mm, using calipers, etc.

3. Mounting

1) Refer to 3-2. and mount the pendulum stopper plate.
2) Refer to 3-1. and mount the reel lock lever assembly.
3) Refer to 1-1. and 1-2. and mount the cassette arm assembly and LS cassette compartment assembly.

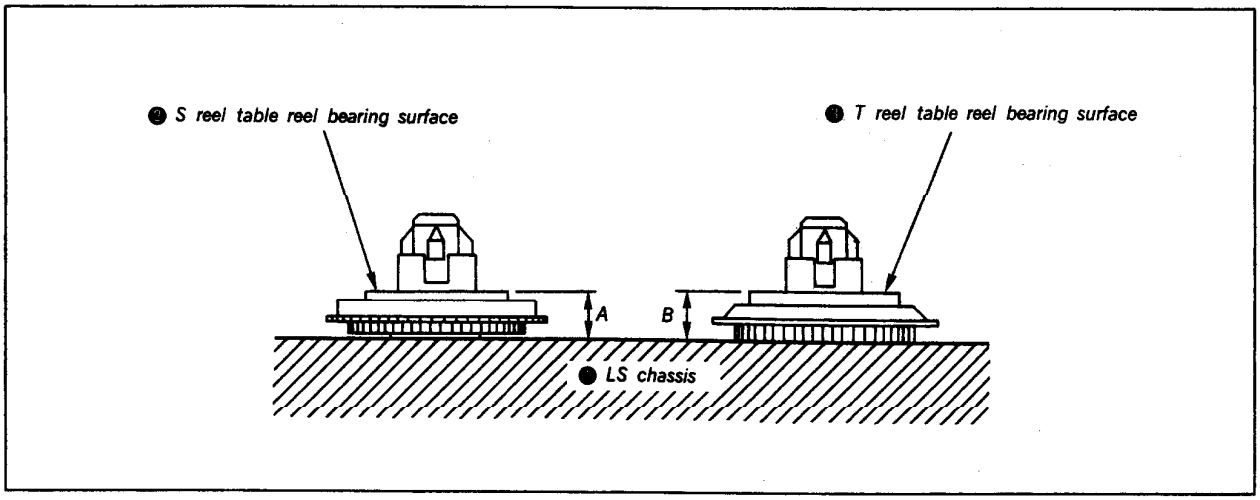


Fig. 41.

3-27. FWD/RVS Torque Check

1) Set the FWD, RVS winding torque cassette (Ref. No. J-9).
2) In FWD mode, confirm that T reel torque value is 11g/cm — 19g/cm.
3) Turn REC/REVIEW button on and check that S reel torque value is 20g/cm — 32g/cm.
4) If the above values are not satisfied, replace the relative reel table.

3-28. Tension Regulator Position Adjustment

1. Removal

1) Refer to 1-1. and 1-2. and remove the cassette arm assembly and LS cassette compartment assembly.

2. Adjustment

1) Set a cassette tape, put into [REC] mode and run the tape. (Refer to 1-4.)
2) With the tape running, confirm that the portion of TG-1 arm assembly ❶ indicated by arrow Ⓐ is within ⅓ of the guide ❷ thickness (the portion indicated by arrow Ⓑ). (Fig. 42.)
3) If the position is not correct, remove the cassette and perform the adjustment starting with the next step 4).
4) Loosen screw ❸.
5) When TG-1 arm assembly ❶ is further inside than the prescribed position, move tension regulator band plate ❹ slightly in the direction of arrow Ⓒ, and when it is further outside, in the direction of arrow Ⓓ, and secure with screw ❸. (Fig. 43.)

Note 1:
The cassette tape should be run at the middle section.

Note 2:
When performing steps 4) and 5), remove the cassette tape first.

3. Mounting

1) Refer to 1-1. and 1-2. and mount the cassette arm assembly and LS cassette compartment assembly.

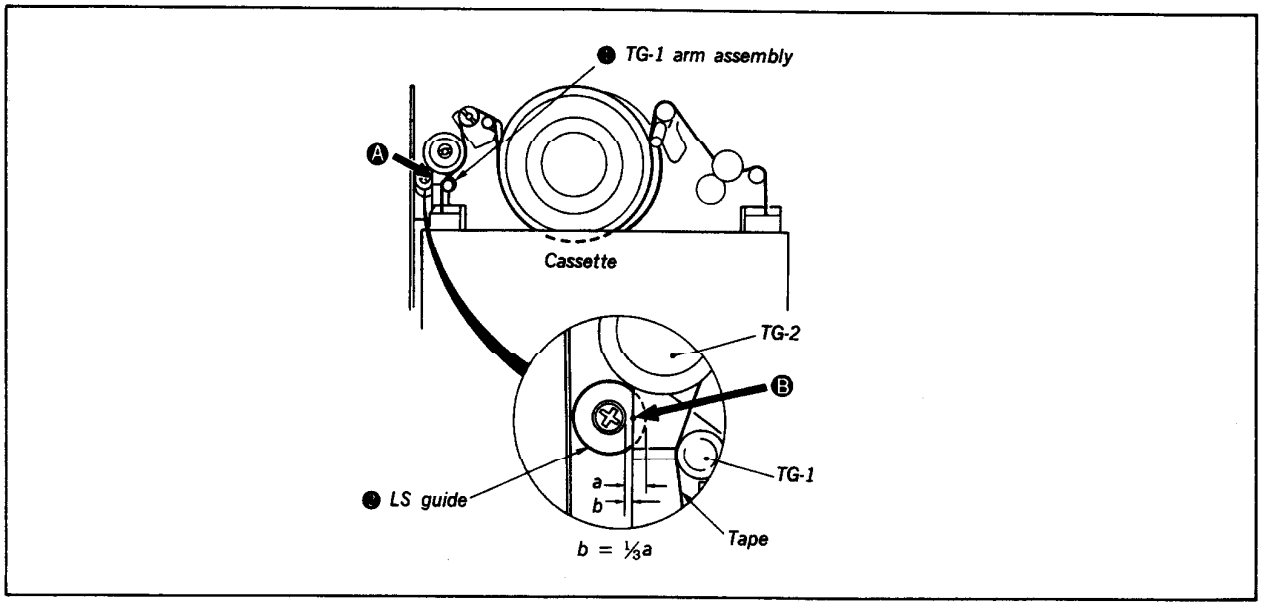


Fig. 42.

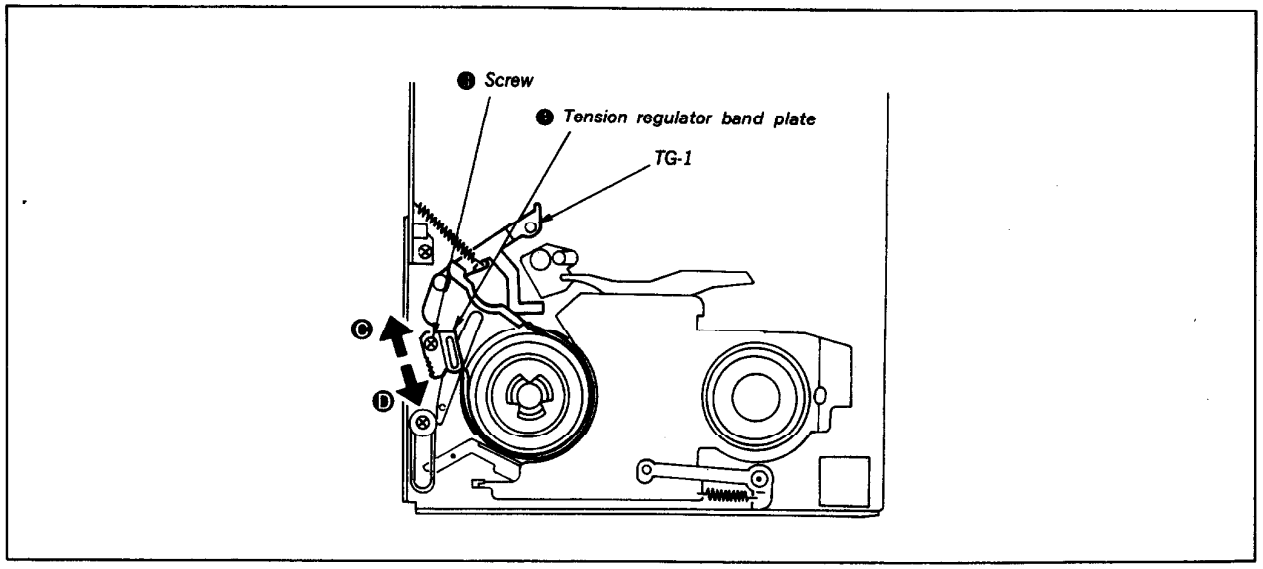


Fig. 43.

3-29. FWD Back Tension Adjustment

1. Removal

1) Refer to 1-1. and 1-2. and remove the cassette arm assembly and LS cassette compartment assembly.

2. Adjustment

1) Put into [REC] mode.
2) Set the tension measurement reel (Ref. No. J-7) ❶.
3) Use the dial tension gauge (Ref. No. J-6) ❷ and measure exit side tape tension. At this time, pull the tape at 14mm/sec to measure. (Fig. 45.)
4) Change the position of the tension regulator spring ❸ position ❹ so that the tension is 6.9 — 7.9g. (Fig. 44, 45)

3. Mounting

1) Refer to 1-1. and 1-2. and mount the cassette arm assembly and LS cassette compartment assembly.

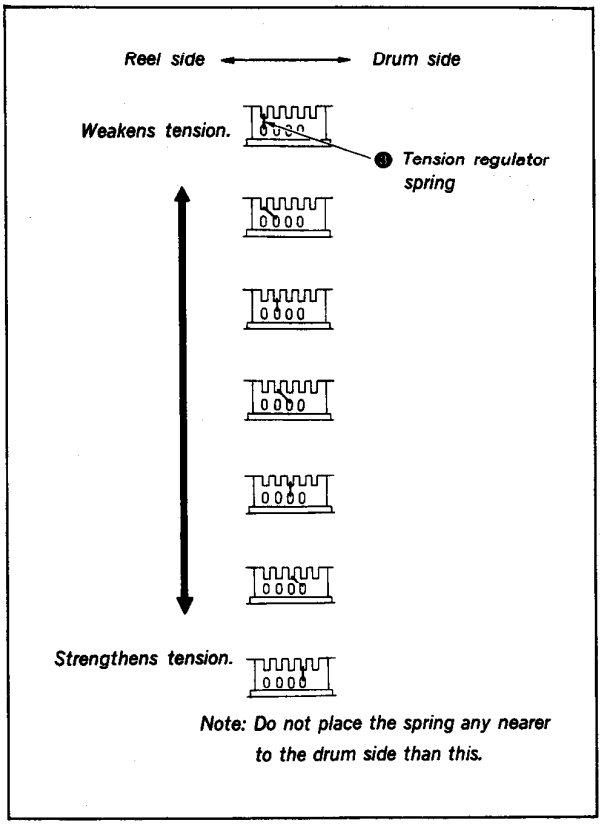

Reel side
Drum side
Weakens tension.
❸ Tension regulator spring
Strengthens tension.
Note: Do not place the spring any nearer to the drum side than this.

Fig. 44.

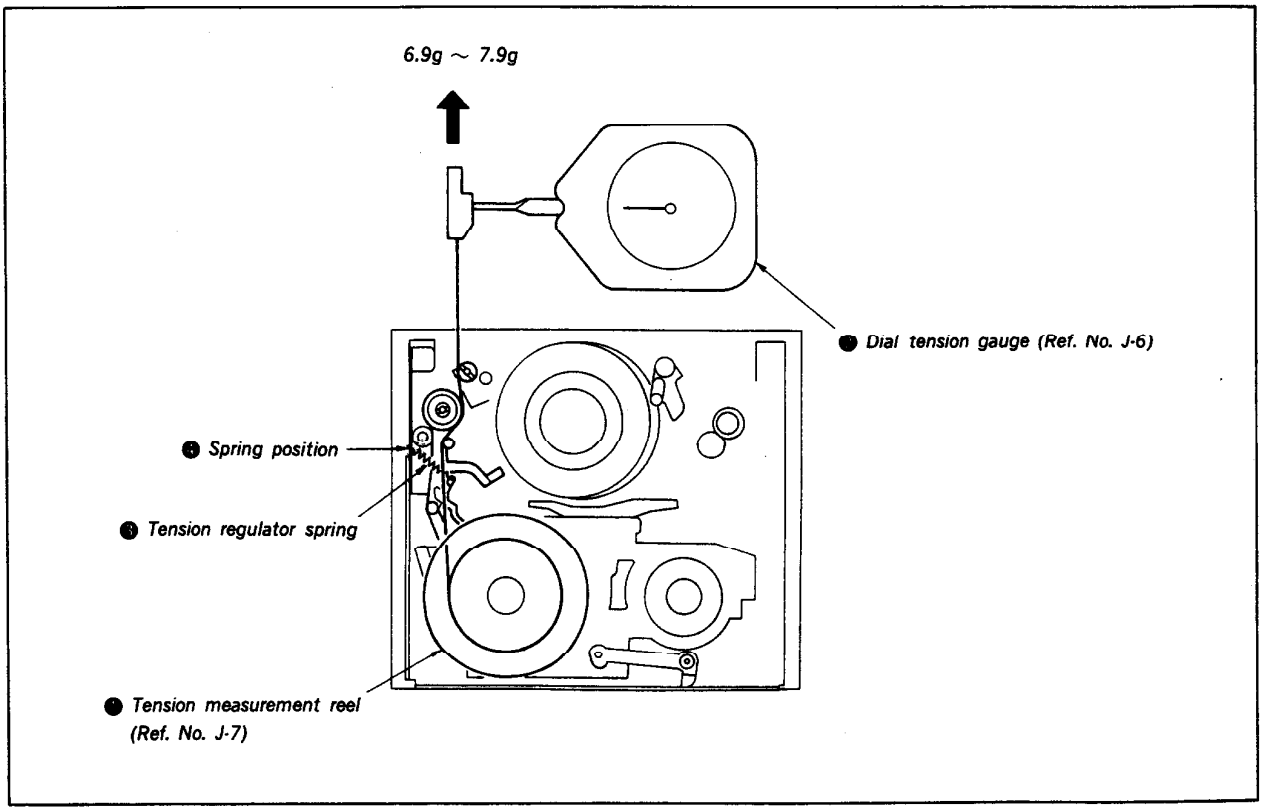


Fig. 45.

3-30. TS Gear Assembly (Fig. 46.)

1. Removal

1) Refer to 1-1. and 1-2. and remove the cassette arm assembly and LS cassette compartment assembly.
2) Refer to 3-1. and remove the reel lock lever assembly.
3) Refer to 3-2. and remove the pendulum stopper plate.
4) Refer to 3-4. and remove the T reel table assembly.
5) Remove TS gear assembly ❶.

2. Mounting

1) Mount TS gear assembly ❶ on shaft ❷.
2) Refer to 3-4. and mount T reel table assembly.
3) Refer to 3-2. and mount the pendulum stopper plate.
4) Refer to 3-1. and mount the reel lock lever assembly.
5) Refer to 1-1. and 1-2. and mount the cassette arm assembly and LS cassette compartment assembly.

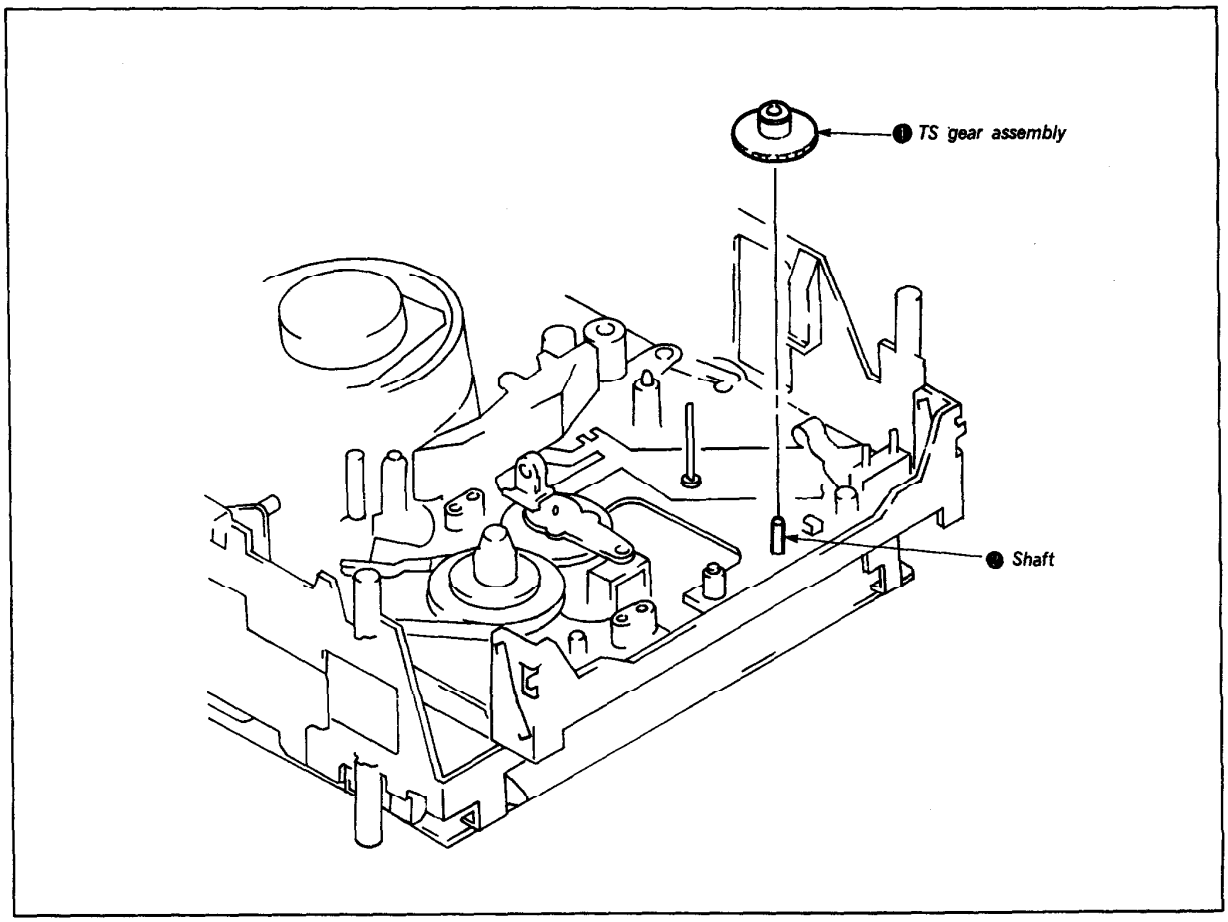


Fig. 46.

4. TAPE PATH ADJUSTMENT

(Track Shift Jig)

Four types of pilot signals are used to control tape running speed on 8mm video systems, and ATF (Automatic Track Finding) is used for high precision tracking. This does away with the need for a tracking adjustment knob and allows accurate track tracing.

However, some aspects of the ATF system create a problem in adjusting the tape path system. Correction is automatic if the head tracing is a little off, which means that perfect tape path adjustment can not be done.

Therefore, the track shift jig (Ref. No. J-16: J-6080-891-A) is used for tape path adjustment. The track shift jig forces ATF to be released, and the tracking amount can be set (track shift) manually, so that tape path adjustment can be performed easily.

* Track shift & Monitor Jig (NTSC : J-6080-843-A / PAL : J-6080-851-A) is useful instead of track shift Jig.

• **Confirm that Camera Adjustment and Video Adjustment have been complete before performing this adjustment.**

4-1. Track Shift Jig Connection

Note: • Refer to the Track Shift Jig instruction manual for details.

• As there are individual connection cords for each model, confirm each time with Service Manual.

1. Connectors

RF/SWP ····· Pin for extraction of RF SW PULSE and Drum head CH1 and CH2 RF signal

CTL ····· Pin which supplies SEL, ATF LOCK, etc. signals

There are two ways of connection method to the unit.

One is to use a connector (Ref No. J-17) between the terminal of RF/SWP and CTL.

The other is to use two connectors for each terminal.

2. Switch Setting

SEL ····· "ON" when performing track shift.
When "OFF", control is from the connected set.

PATTERN ····· Set to EV side.

ATF LOCK ····· Set to "OFF".

Exa.(1)

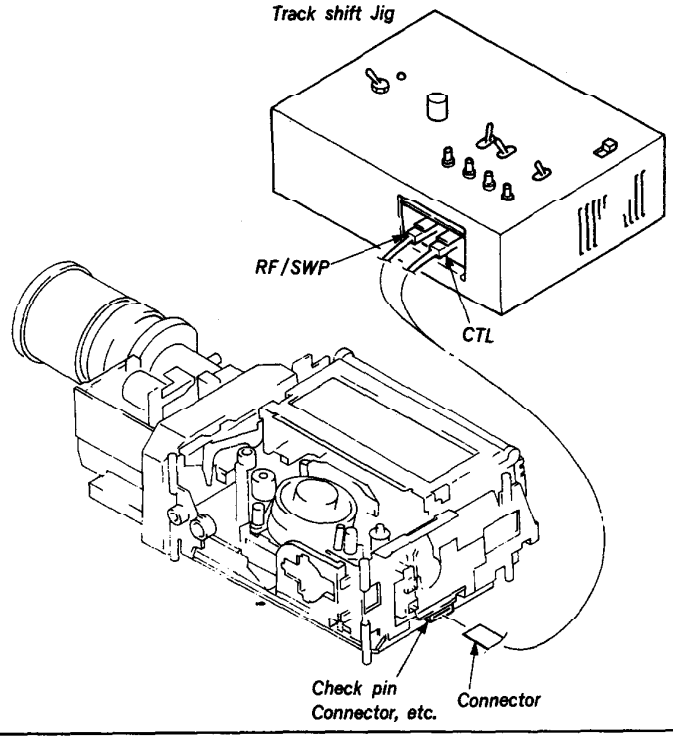


Fig. 47-1.

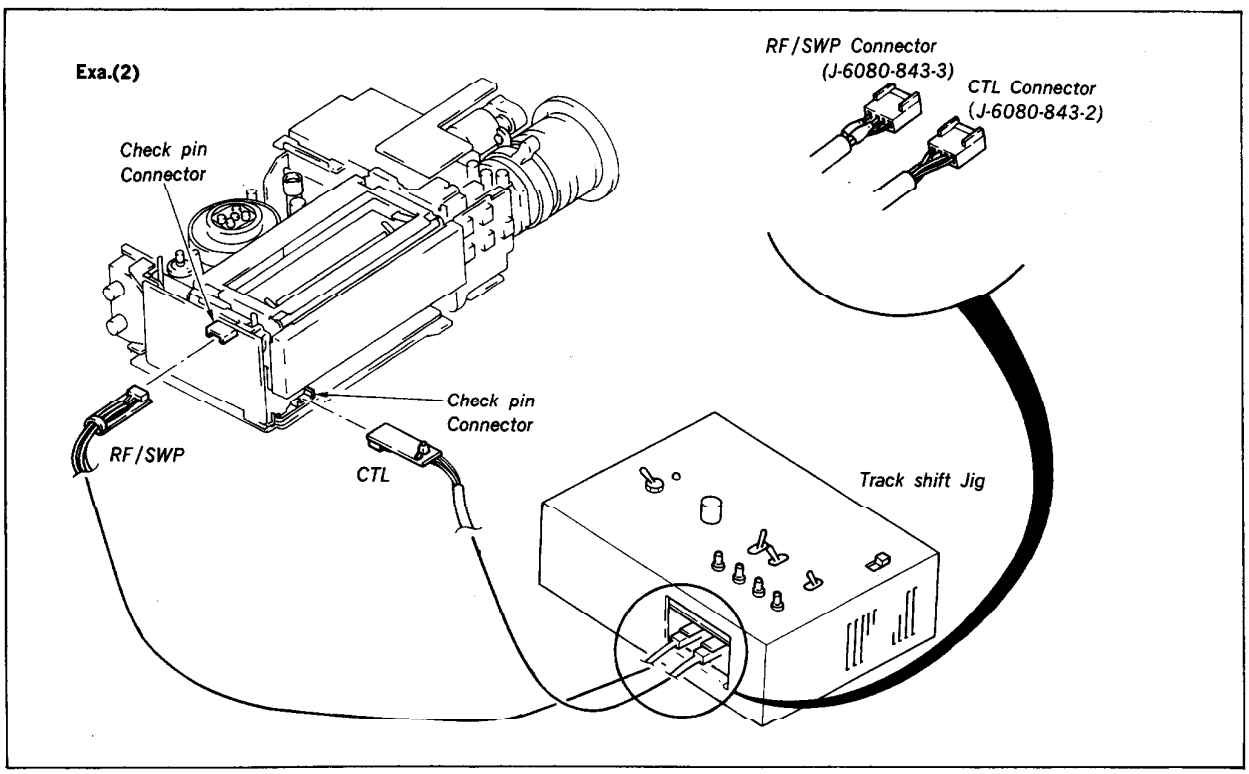


Fig. 47-2.

4-2. Preparation for Adjustment

1) Clean the tape running surfaces (Tape guides, Drum, Capstan shaft, Pinch roller).
2) Refer to the track shift Jig connection diagram 4-1.), connect the track shift Jig and set the switches.
3) Oscilloscope connection:
   CH1: Track shift Jig CH2 pin
   (CH2 head output)
   CH2: Track shift Jig RF SWP pin
   (External trigger)
4) Play back a tracking alignment tape (NTSC-WR5-1N, PAL-WR5-1C).
5) Turn the track shift Jig track shift knob and adjust so that RF waveform amplitude is maximum. (Fig. 48.)
   When the RF waveform is unstable and difficult to adjust, adjust after turning ATF LOCK switch "ON". Switch to "OFF" after adjusting.

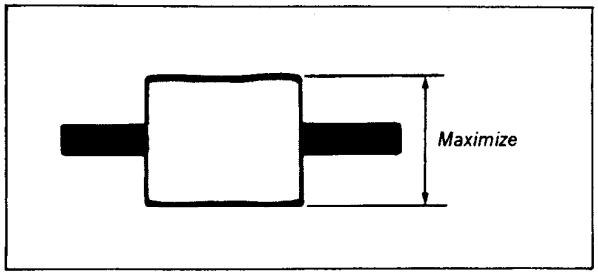


Fig. 48.

6) Confirm that the RF waveform is flat at both entrance and exit sides on the oscilloscope. (Fig. 49 ⓐ)
   If not, perform the following adjustment.
   When entrance/exit side RF waveform is not flat: (Fig. 49 ⓑ ⓒ)
   --- After performing 4-3. Tracking Coarse Adjustment, adjust according to 4-4. Tracking Fine Adjustment.

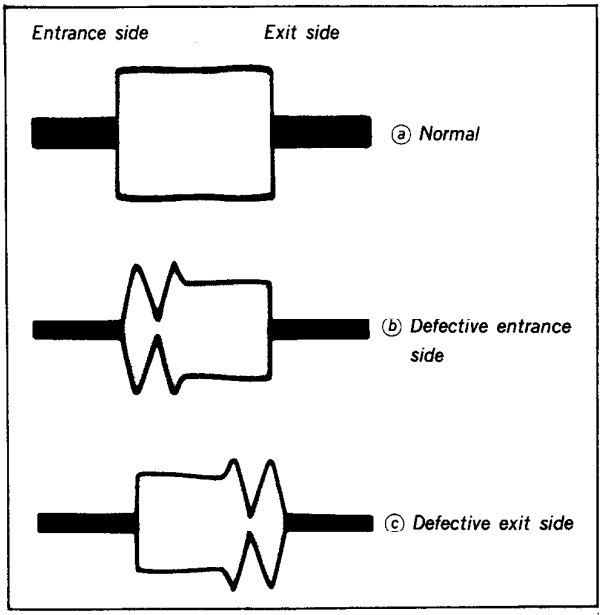


Fig. 49.

7) When the RF waveform is OK, perform 4-6. Check after Adjustment.

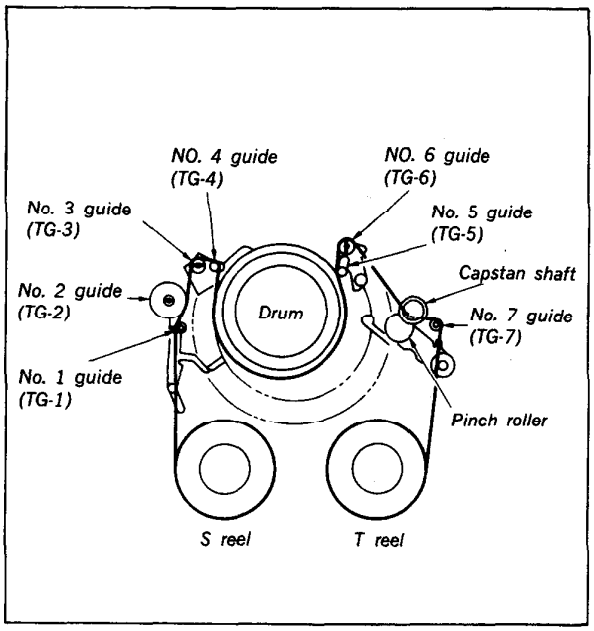


Fig. 50.

4-3. Tracking Coarse Adjustment

1) Play back a tracking alignment tape
2) Turn the track shift Jig track shift knob so that RF waveform amplitude is maximum. (Fig. 48.)
3) Loosen No. 3 guide (TG-3) lock screw ❶ and turn No. 3 guide so that the entrance side waveform is flat. (Fig. 51)
4) Loosen No. 6 guide (TG-6) lock screw ❷ and turn No. 6 guide so that the exit side waveform is flat. (Fig. 52)

Note:

Do not loosen the lock screws too much or the guide will move by themselves.

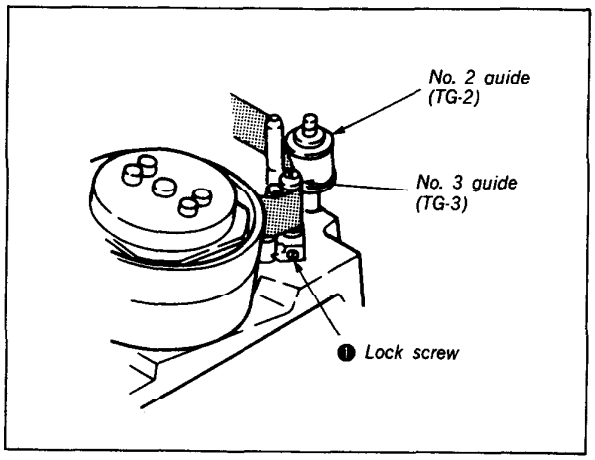


Fig. 51.

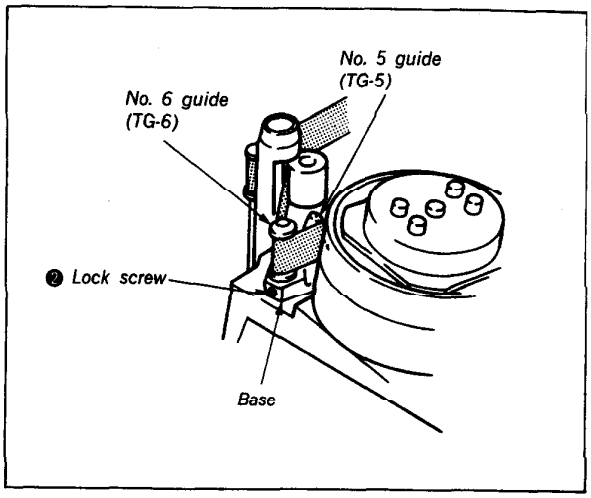


Fig. 52.

4-4. Tracking Fine Adjustment

1) Play back a tracking alignment tape, turn the track shif jig track shift knob counterclockwise and make the RI waveform amplitude ⅔ of maximum. (Fig. 53.)

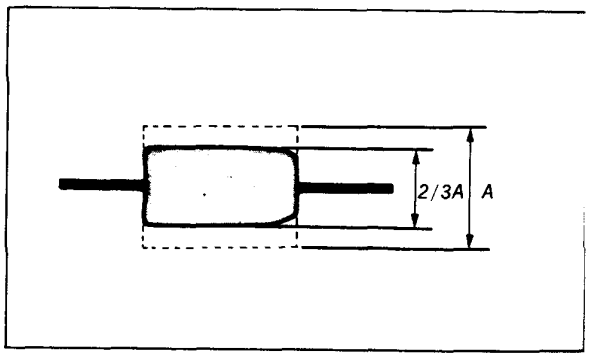


Fig. 53.

2) Confirm that the waveform is flat. If it is not, turn No. 3 (TG-3) and No. 6 (TG-6) guides to flatten it. (Fig. 51,52.)
3) Tighten No. 3 guide lock screw and lock No. 3 guide. At this time, confirm that the entrance side waveform does not change.
4) Tighten No. 6 guide lock screw and lock No. 6 guide. At this time, confirm that the exit side waveform does not change.

Note:

When tightening No. 6 guide lock screw, hold the base down lightly so that No. 5 guide (TG-5) tip does not touch the drum. (Fig. 52.)

4-5. No. 2 Guide (TG-2) Adjustment

When No. 2 guide has been rotated or replaced, pre-set height first and then perform adjustment.

1. No. 2 Guide Height Pre-set

1) Screw in TG-2 nut until the slit is the same height as the upper surface of TG-2 shaft. (Fig. 54 ⓐ)
   Note:
   Be sure to remove the screw lock completely first.
2) Rotate TG-2 nut 180 degrees clockwise. (Fig. 54 ⓑ)

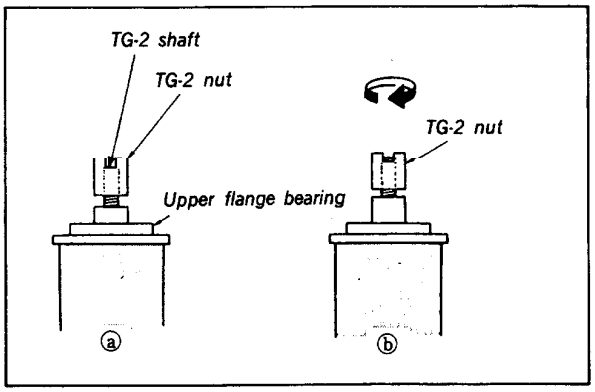


Fig. 54.

2. No. 2 Guide (TG-2) Adjustment

1) Play back a tracking alignment tape.
2) Turn track shift Jig SEL switch off.
3) Check the waveform in REV mode. (Fig. 55.)
   Note:
   Use the beginning (TAPE TOP) of the alignment tape to check.
   If the waveform is not correct, pre-set No. 2 guide height and perform the following adjustment. (Fig. 55 ⓐ)

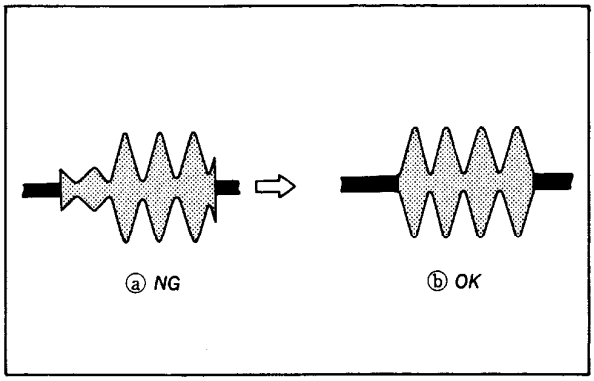


Fig. 55.

4) Rotate TG-2 nut 90 degrees clockwise and perform step 3) again. Repeat steps 3) and 4) until the correct waveform is obtained.
   At this time confirm that the tracking waveform has not changed. If it has, perform entrance side tracking fine adjustment and repeat step 3) again.
5) Tighten No. 3 guide (TG-3) lock screw. At this time confirm that the entrance side waveform does not change.
6) Apply screw lock to No. 2 guide (TG-2).

4-6. No.7 Guide (TG-7) Adjustment

1) Play back a tracking alignment tape and put into REV mode.
2) Confirm that there is no tape bending between No. 6 guide (TG-6) and the capstan. (Fig. 56) If there is, turn No. 7 guide (TG-7) until the bending disappears.
3) Put into playback again and confirm that there is no ending between No. 7 guide (TG-7) and the capstan.
   Specification: less than 0.5mm
   If there is bending, turn No. 7 guide (TG-7) until it disappears.

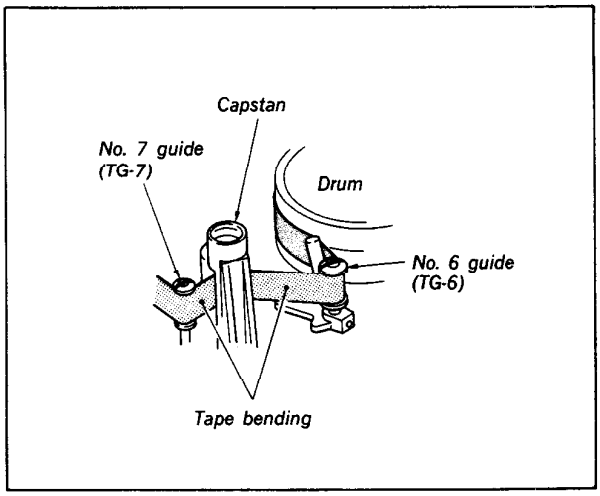


Fig. 56.

4-7. CUE, REV Waveform Check

1) Play back a tracking alignment tape and put into [REV] mode.
   The pitch of the waveform peaks should be uniform at this time. (Fig. 57 ⓐ)
   If not, perform 4-4. Tracking Fine Adjustment and 4-5. No. 2 Guide Adjustment.
2) Put into [CUE] mode. The waveform peak pitch should be uniform. (Fig. 57 ⓑ)
   If not, perform 4-4. Tracking Fine Adjustment.

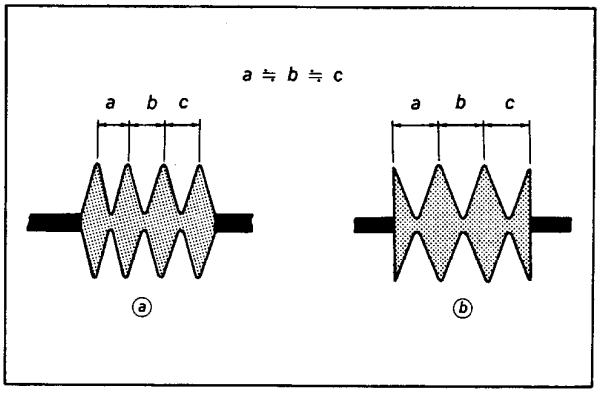


Fig. 57.

4-8. Check after Adjustment

1. Tracking Check

1) Play back a tracking alignment tape, turn the track s Jig track shift knob and adjust RF waveform amplit to ⅔ of maximum. (Fig. 58.)
2) At this time, confirm that the amplitude minimum va (E_{MIN}) is more than 75% of maximum value (E_{MAX}). (I 59.)
3) Confirm that there are no large fluctuations in waveform. (Fig. 60.)

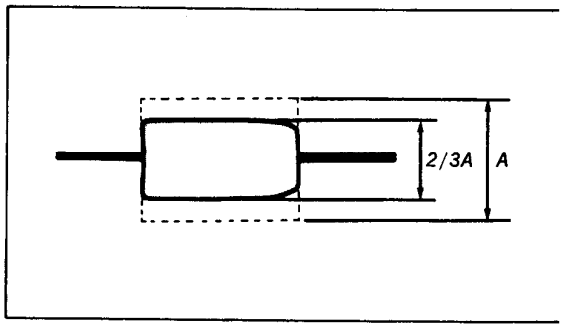


Fig. 58.

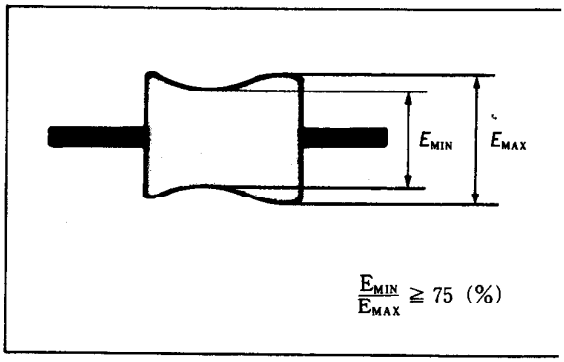


Fig. 59.

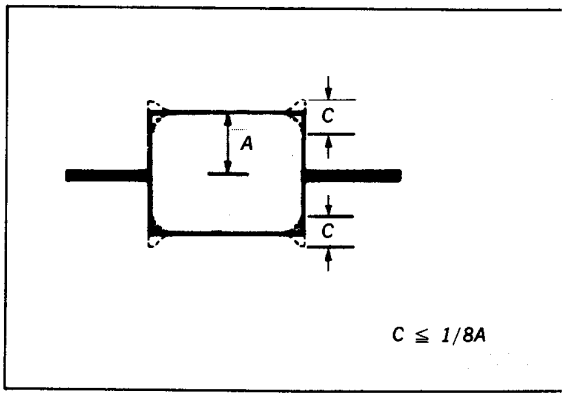


Fig. 60.

2. Rise Check

1) Play back a tracking alignment tape.
2) Turn track shift Jig track shift knob so that RF waveform amplitude is maximum.
3) Eject, then load again.
4) In playback mode, confirm that the RF waveform rises to horizontal within 1 second. Also, confirm that there is no tape bending near the pinch roller at this time. (Fig. 61.)
5) Play back after CUE/REV and FF/REW, and confirm that the RF waveform rises to horizontal within 1 second. Also, confirm that there is no tape bending near the pinch roller at this time.
6) Repeat the checks in steps 3) 5).

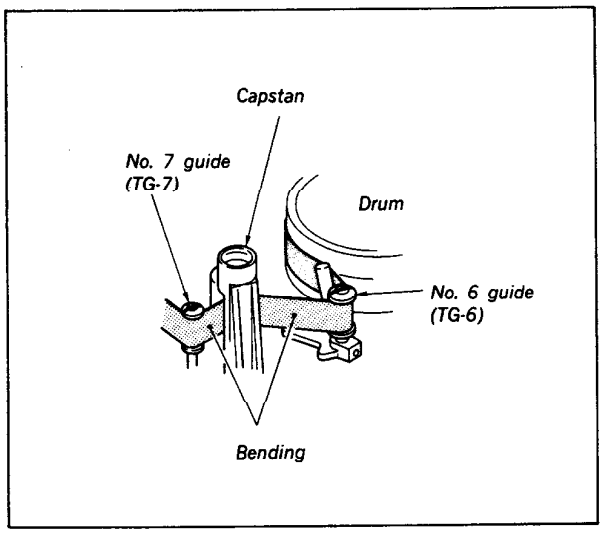


Fig. 61.

3. Tape Running Check

In playback mode, make sure there are no spaces or large curls at No.2 guide lower flange, No. 3 guide upper flange and No.6 guide upper flange, and that there is no curl at No. 7 guide upper and lower flanges. (Fig. 62.)

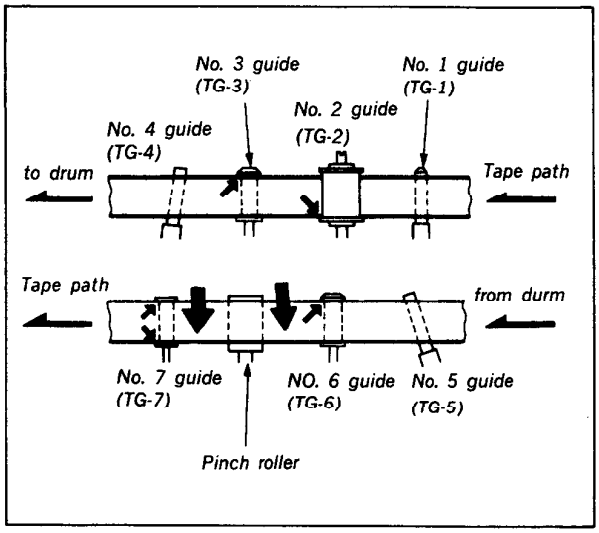


Fig. 62.

8mm Video MECHANICAL ADJUSTMENT MANUAL

SONY

SERVICE MANUAL

TYPE III (O' MECHANISM)

SUPPLEMENT-1

This supplement updatas the 8mm Video MECHANICAL ADJUSTMENT MANUAL.
Please add or modify the following items.

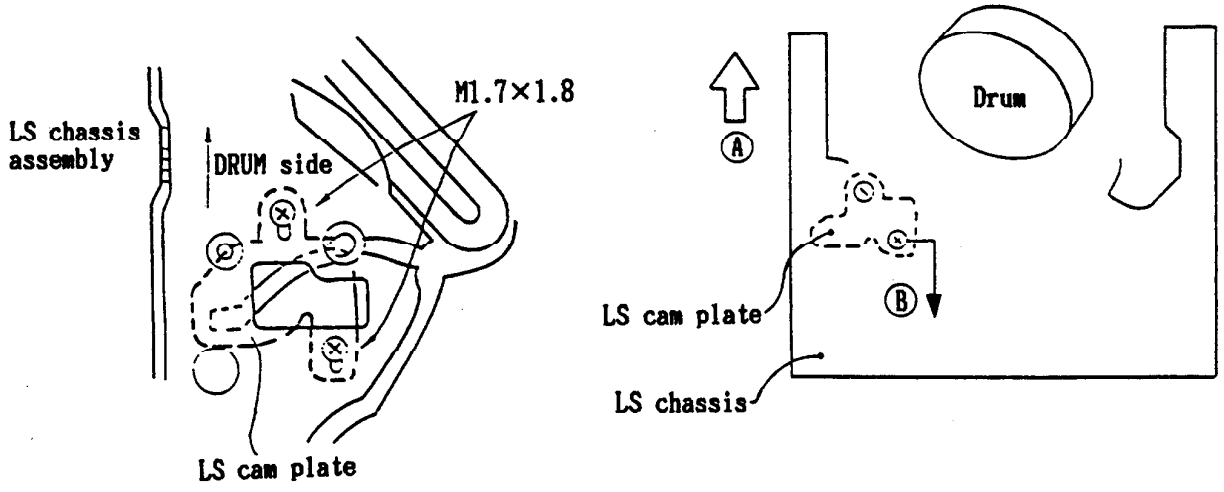
Please add the next item between 3-28. Tension Regulator Position Adjustment and 3-29. FWD Back Tension Adjustment.

LS CAM PLATE ADJUSTMENT

LS cam plate must be adjusted, when replacing LS chassis assembly, LS cam plate, Mechanical chassis or LS gear C.
(✱The following 「LS CAM PLATE ADJUSTMENT」 is not stated on the Service Manual.)

LS CAM PLATE ADJUSTMENT

1. Loosely tighten LS cam plate on the back of LS chassis assembly pressing LS cam plate to DRUM with 2 screws (M1.7×1.8) and apply grease to the groove.
2. After installing LS chassis assembly on mechanical chassis.
   ① Loosen two screws (M1.7×1.8).
   ② As pressing LS chassis assembly in the direction arrow Ⓐ.
   ③ Move LS cam plate in the direction of arrow Ⓑ and tighten the screws.



☛ : corrected portion

<table>
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<tr><td>10</td><td>Note: Oil
Be sure to use the specified oil. (The wrong viscosity may cause problems)
Oil: Part No. 7-661-088-61
(Mitsubishi Diamond Oil Hydrofluid NT-68)</td><td>Note: Oil
Be sure to use the specified oil. (The wrong viscosity may cause problems)
Oil: Part No. 7-661-018-18
(Mitsubishi Diamond Oil Hydrofluid NT-68)</td></tr>
<tr><td>11</td><td>Please to delete for J8 and J15.
<table>
<tr><td>J-7</td><td>Tension measurement reel</td><td>J-6080-831-A</td><td></td><td>with ϕ30 tape</td></tr>
<tr><td>~~J-8~~</td><td>~~Tension measurement reel~~</td><td>~~J-6080-832-A~~</td><td></td><td>~~with ϕ16 string~~</td></tr>
<tr><td>J-9</td><td>FWD, RVS winding torque cassette</td><td>J-6080-824-A</td><td>GD-2086</td><td></td></tr>
<tr><td>J-10</td><td>Rotary drum jig</td><td colspan="3">(packed with repair rotary upper drum)</td></tr>
<tr><td>J-11</td><td>Tape path screwdriver</td><td>J-6080-811-A</td><td></td><td>Tape guide adjustment</td></tr>
<tr><td>J-12</td><td>Mode selector II panel</td><td>J-6080-844-A</td><td></td><td></td></tr>
<tr><td>J-13</td><td>Mode selector</td><td>J-6080-825-A</td><td></td><td>For all models</td></tr>
<tr><td>J-14</td><td>Mode selector II conversion connector</td><td>J-6080-845-A</td><td></td><td></td></tr>
<tr><td>~~J-15~~</td><td>~~Tape end detection filter~~</td><td>~~J-6080-848-A~~</td><td></td><td>~~Tape end detection adjustment~~</td></tr>
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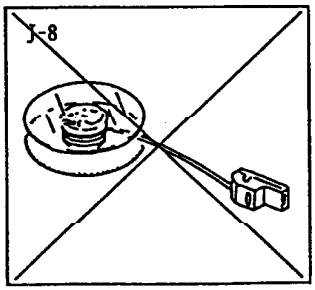

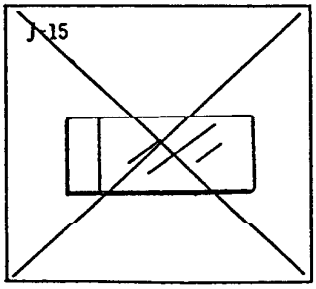
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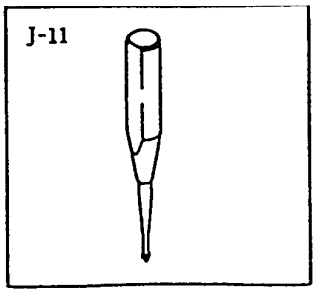
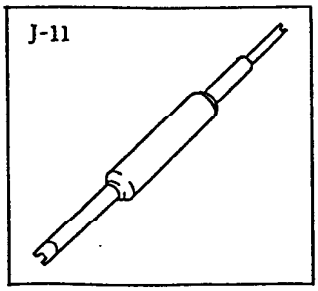
<tr><td>11</td><td> 
</td><td> 
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<tr><td>38</td><td>2) In FWD mode, confirm that T reel torque value is 11g/cm-19g/cm.</td><td>2) In FWD mode, confirm that T reel torque value is 9.5g/cm-20.5g/cm.</td></tr>
<tr><td>40</td><td>4) Change the position of the tension regulator spring ❸ position ❶ so that the tension is 6.9—7.9g. (Fig. 44, 45)</td><td>4) Change the position of the tention regulator spring ❸ position ❶ so that measure center value of the tention is 6.9—7.9g. (Fig. 44, 45)</td></tr>
</table>

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Personal Video Group

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